I. D. DEVELOPMENT

THE INTERNATIONAL GUIDE TO INDUSTRIAL PLANNING AND EXPANSION

Walter E. Froehlich, vice president of Associated Spring Corporation, explains in a detailed, special report for I. D. the various criteria his company uses in plant location activities. The story begins on page 12.

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INDUSTRIAL
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AND MANUFACTURERS RECORD

VOLUME 129 MARCH 1960 NUMBER 3

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CHECK POINTS

INDUSTRIAL DEVELOPMENT MANUFACTURERS RECORD

During recent years we've done a lot of talking about the new "profession" of industrial development. We've watched happily as the state of the art has advanced. We've hailed every effort to introduce more science and logic into an activity which was once, to put it bluntly, in disrepute.

Substantial progress has been made since the days when chamber of commerce personnel were selected on the basis of their huckstering ability and the information they produced was regarded with suspicion and contempt. Today there are hundreds of highly competent men conducting sound, constructive programs in chambers of commerce and other development units.

One of the organizations which has contributed most to this progress is the American Industrial Development Council, which holds its annual meeting in Atlantic City March 27 to 30. AIDC is the leading organization of full-time industrial planning and development specialists.

During its early years, AIDC membership was carefully limited to the top men in the business of aiding industry to find sites for new facilities. As recently as the end of World War II membership was only a hundred or so. But the last decade has seen a great boom in development activity and there has been constant pressure on AIDC to accept new members. There are now some 700 members in the U.S. and Canada.

We believe that, in general, this growth has been healthy. But we are alarmed by the tendency on the part of some who assume that membership growth and professional progress are synonomous. In our opinion, AIDC falls far short of its responsibility if it merely holds a meeting every year and welcomes another batch of new members.

At this point, very few AIDC members are from the industry side of the fence. While there's been a special membership category for those who are responsible for site selection in manufacturing and distributing firms, less than a score have enrolled. This may be due to lack of publicity, but we suspect it is more a lack of anything in the program to attract these busy, fact-hungry people.

These are some of the reasons that there is an urgent need for AIDC to undertake a strong, year-round effort to advance the professional status of its members and prospective members. We believe it is essential to lay the same foundation for this profession that has been laid for others — fundamental education and continuing research.

We believe AIDC should devote its attention first to the matter of education. Today, industrial development is a field which sadly lacks an academic base. The competent men in the field were, for the most part, trained for some other profession first and then adapted themselves through on-the-job training. There are only a handful of industrial engineers and economic geographers who received strong academic preparation directly related to their development assignments.

On-the-job training is fine as far as it goes. The Chamber of Commerce of the U.S. has sponsored annual short-courses each summer in such institutions as Yale, Stanford, Northwestern, and North Carolina. These sessions have meant a great deal to the chamber managers who could leave their jobs for two weeks to get quick briefings on development techniques.

But this will never be enough. We need a standard four-year course which prepares a man for a career in industrial development, just as

city planners and others are trained. Several alert colleges and universities have already shown an interest.

We'd like to see AIDC set up a committee in every region to contact leading universities and present the need for programs in the field of area and industrial development. Further, we'd like to see AIDC suggest the type of curriculum which would best prepare a man for this challenging work.

We believe a number of institutions would respond. And we know that their graduates would find tremendous opportunities awaiting them. Every top-level development group in the country today has an opening right now for a young man right out of college, specifically trained in development, and eager to make a career of it. Many of the nation's growth firms, placing new emphasis on planning, would welcome these men with open arms.

We hope AIDC directors will consider this matter seriously and act promptly. It will take years to establish programs and produce more than a trickle of graduates. Meanwhile, we're all active in a profession which is on a highly questionable base.

Also, we hope AIDC will invest some of its funds in research into professional needs and programs. The Council might well contract with Stanford or one of the other leading institutes to draft a proposed curriculum which could be used as a model by committees to approach various colleges and institutions.

Similarly, a comprehensive study of job analyses might be sponsored with AIDC funds. Other studies could deal with such matters as salaries, budgets, programming, and administration. There's been very little analytical work done in any of these fields.

We think AIDC could well devote a day to such discussions at each national meeting. Likewise, election of officers and directors should be done in open meetings with each nominee presented on the basis of what he has done or can do to advance the profession.

This all adds up to a basic question for AIDC members: do they really want a **professional** organization? If so, **professional** standards must be set and met.

• • •

The fact that some government agencies ignore the economic facts of life was well demonstrated by a recent GAO report which listed a waste of $7.5 million in shipping strategic metals from Nevada to Ohio. As any industrial developer could have told them, you just don't move bulk materials that far — you locate your facility next to the source. This is one more bit of evidence of the need for a widespread educational program in our field.

Despite several unsuccessful attempts, proponents of special legislation for distressed areas have not tossed in the towel — new bills are said to be ready for the fresh session of Congress. Frankly, we've not been disappointed with the outcome of previous debates. Those who urge Federal hand-outs for economically sick areas have not, in our opinion, proven their point. Here's hoping that if new bills are brought forward they may reflect a more imaginative and constructive view than the ones which have been the subject of debate during the last two sessions.

Outside Virginia, not many people know that there are two outstanding Senators from that state with similar names: Byrd and Bird. Senator Harry Byrd is the budget-conscious U.S. solon who has long been in the national limelight. Less known, but also highly effective is State Senator Lloyd Bird, of Richmond. Often mistaken for the better-known Byrd, Senator Bird has long been a figure in the economic development of his state and the South. We were pleased to have him as a recent visitor to our office. —H.M.C.

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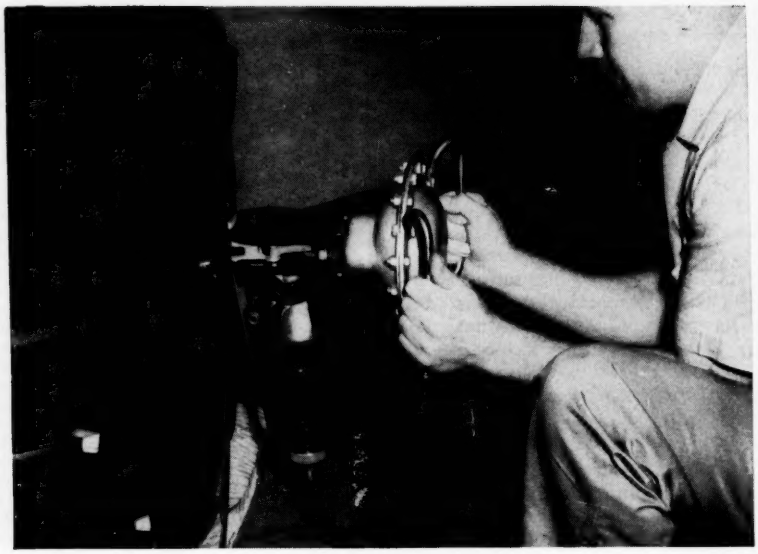

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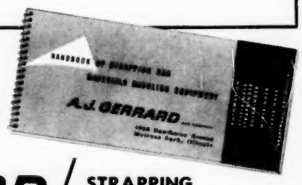

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INDUSTRIAL DEVELOPMENT LETTER MANUFACTURERS RECORD

SIRS: In the December issue of INDUSTRIAL DEVELOPMENT, we noted the listing of communities who have submitted their audit data.

We would appreciate it very much if you would send us one copy of the Norman, Oklahoma report which is listed. There are several others we should like to have if they are available: Amarillo, Austin, Lubbock and Pampa in Texas, and Alhambra, California.

We have not as yet seen a sample of this type of report but the idea seems to be a good one. As we wrote you previously, if you initiate some sort of service so that reports could be sent automatically to subscribers, we should be interested in knowing about it.

MAXINE E. BRADSHAW
Librarian
Larry Smith & Company
Seattle, Washington

► **The various communities have been contacted with regard to furnishing audits.**

SIRS: We subscribe to your publication INDUSTRIAL DEVELOPMENT and MANUFACTURERS RECORD due to the fact that it contains a great deal of information regarding the activities of state and local development companies, new plant construction, etc.

In this connection, we are enclosing a new publication of this Administration entitled "Loans to Local Development Companies." It is written in non-technical language and sets forth the key features of the program, including the procedures and rules involved as well as the benefits obtainable.

Your particular attention is called to the fact that development company loans may now be made to finance the acquisition of machinery as well as plant buildings. In addition, these loans may now be made to finance recreational or amusement facilities, provided that such facilities contribute to the health of general well-being of the public.

It would be appreciated if you would mention the availability of this brochure in your magazine since we believe it would be of interest to any local development companies which have not already received a copy.

S. B. PEARSON, Chief
Investment Division
Small Business Administration
Richmond, Virginia

► **See Books and Reports section.**

SIRS: Keeping our members informed is one of our primary responsibilities. In evaluating and appraising media which we recommend for our member plants, we have noted with great interest your excellent publication.

Would you please place us on your mailing list for one copy and send all subscription information so we may pass them along to any of our 200 member plants who are interested.

RONALD L. SEGAL
Executive Director
South Carolina Needle Trades
Management Association
Columbia, South Carolina

SIRS: We found Dr. Joseph A. Russell's article, "Geography of Industrial Costs"

very interesting. We have used such contour lines as Dr. Russell suggests in special cases, but never to the extent outlined in the article.

Since the method has such potential we would like to interject a note of caution. Dr. Russell's method can assist materially in determining the community with the least cost, but costs **at an individual site** are the ones that determine profit or loss. We emphasize this point for two reasons. First of all, costs at different sites in the same community can vary widely. Dr. Russell quoted Leonard Yaseen re geography generally, but a quote from him regarding a specific case could have shown the importance of what we might term microgeography. Mr. Yaseen once described the plight of a company which located outside the free delivery limits of a community.

This plight, to some extent, resulted from the second reason we have for emphasizing cost at the site. Most communities and many companies are unaware of the fact that good industrial sites are scarce. We have no intention of describing the difference between land and a site here; it would be a good subject for a lead article. Suffice it to say that some communities do not have any sites. In other cases, the land itself might be so priced or so located as to make a particular utility or service so expensive that a higher cost community would be the final choice because it has the least cost site.

J. R. PETERSON
Research Engineer
Georgia Institute of Technology
Atlanta, Georgia

SIRE: Please send us about a half-dozen copies of your "Registered Community Audit form. We would like to have them for use as examples of industrial promotion activities for planning commissions. The idea certainly sounds intriguing.

ROBERT A. CLARK
Research Associate
American Society of Planning Officials
Chicago, Illinois

SIRS: We have noted with interest the "Registered Community Audit' of Indianapolis. We would appreciate knowing if there are other communities in Indiana that have availed themselves of this service as we think it is a substantial aid to proper presentation of a community, and we may have occasion to call on you if you could give us this information.

PAUL STARRETT
Klein & Kuhn
Real Estate Management
Indianapolis, Indiana

► **A complete list of available community audits will be furnished upon request.**

CORRECTION

In a caption which appeared under an aerial photograph of Millsdale Industrial Park, San Francisco, in the January, 1960, issue of ID/MR, Coldwell, Banker & Company of San Francisco was incorrectly identified as the owner of the park. The caption should have said that Coldwell, Banker & Company are the exclusive selling agents for the owners, Millwood Development Company No. 2. The San Francisco brokerage organization does not buy or sell, or hold, property for investment for its own account. They act only as brokers or agents.

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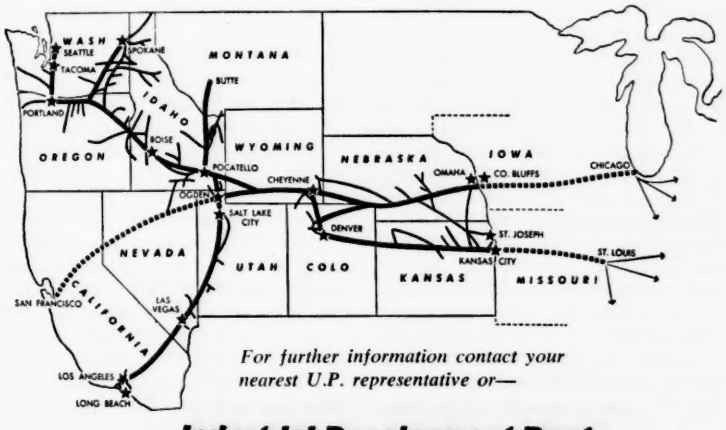

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The various aspects of lease financing for business and industrial expansion programs, and its advantages and disadvantages, are explained here by an investment banker who is an expert in the field . . .

By DONALD R. GANT

CAN LEASE FINANCING

I would like to explore some of the considerations that bear upon the decision as to whether or not to use the lease as a financing device.

It is important at the outset to have an understanding of just what the term lease financing encompasses. After all, leasing has been an accepted and widely used business practice for many years. There are undeniably many instances in which leasing offers the only practical means of obtaining the use of an asset.

An example of this would be the leasing of assets which are needed for only a short period of time relative to their economic life.

Another would be the leasing of office space in metropolitan areas, where the ownership of an entire building would be impractical.

Still another example might be the leasing of computers and other types of highly technical equipment, where the manufacturer offers continuing maintenance and protection against obsolence under a lease arrangement.

These types of business leasing do not fall within my own concept of lease financing. Leasing takes on a financial aspect when the following conditions are present: (1.) A need for the asset by the company leasing it for all or a major part of its econimic life; (2.) A lease which is designed to make the asset available to the company for this period; (3.) The absence of any operating reason which would make leasing preferable to ownership.

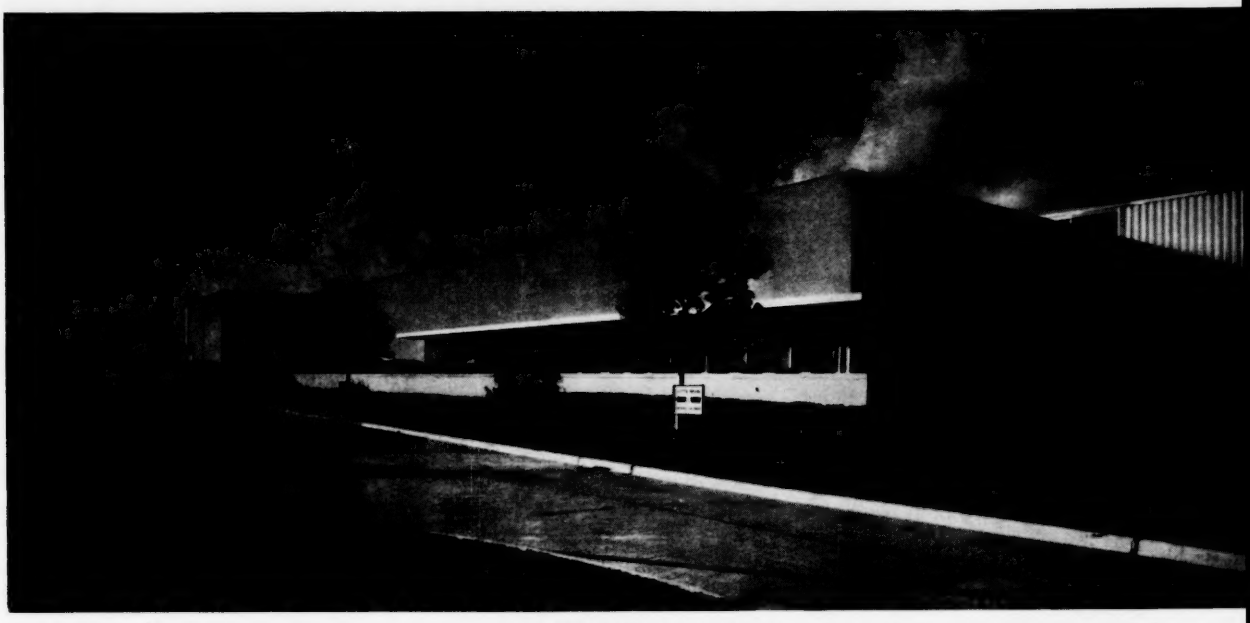
In practice, the types of leases which meet these conditions are easily recognizable. They invariably provide for a non-cancellable period during which the rentals are sufficient to amortize all or nearly all of the asset's cost and provide the lessor with an agreed-upon return on his investment. And, they are usually on a net basis with the lessee assuming the expenses of maintenance, taxes, insurance and other responsibilities normally associated with ownership.

The thing which distinguishes these leases is that they are designed to serve as financing instruments rather than as leases in the traditional sense. Because of this, financial leases can be treated in common regardless of the assets to which they relate.

The only real importance of the asset is that its economic life tends to determine the term of the financing which the lease offers. Thus real estate offers long-term financing, equipment generally involves intermediate-term financing, and motor vehicles short-term financing.

Otherwise the asset involved is relatively unimportant. What is important is the lease itself. The essential feature of the financial lease is that it represents a promise to pay and as such it qualifies as a general credit obligation.

The close similarity between lease financing and debt financing can be seen in the fact that both impose upon the user a fixed obligation to make a series of future payments. As they become due, lease payments are legally enforceable claims, ranking equally with other liabilities. It is true that there may be a legal distinction between the treatment accorded a lease for real property and that accorded a debt instrument if the lessee goes into bankruptcy. However, the inability to meet lease payments can lead to financial difficulties, just as surely as the inability to meet the interest and sink-



Author Donald Grant describes lease financing as "simply another alternative method of borrowing" and this method may be the one best suited to you. Plants such as this one have been built for and leased advantageously by companies all over the nation.

HELP YOU?

ing fund requirements of a debt issue. This should be the important consideration to a company in evaluating the two alternatives, not which may result in the smallest claim after the bankruptcy stage has been reached.

Another indication is the way in which the financial community views lease financing. This attitude is reflected in the results of a recent survey conducted by the HARVARD BUSINESS REVIEW among the major banks, insurance companies, pension funds and investment banking firms.[1] The respondents were asked how they would rank lease obligations among the various conventional forms of capital. Some 81 per cent classified them as a form of debt, almost all ranking them with senior or secured debt.

Lease financing, then is simply another alternative method of borrowing. With this in mind, let's examine some of the principal arguments which are commonly advanced in support of leasing?

1. The one most frequently heard is that leasing frees working capital. There are many variations on this basic theme, but the line of reasoning generally is somewhat as follows: By leasing fixed assets a company can make the funds which would otherwise be tied up in those assets available for alternative purposes, such as working capital. The advantage lies in the fact that fixed assets offer a relatively low return compared to working capital, which can be turned over more rapidly, and therefore profits are maximized. The profitability of a particular company's working capital is often demonstrated by dividing its total net income by working capital, which usually indicates returns of 20 per cent or higher.

This type of reasoning is prevalent in the retailing field where it is frequently argued that companies should stay out of the real estate business and devote all of their capital to merchandising activities.

There is also a school of thought in industrial circles which argues that a company should lease assets which offer a low return, such as warehouses and automotive equipment, and conserve its own capital for higher yielding investments. This theory has found great acceptance among the integrated oil companies. These companies have followed the policy of channeling their capital into areas of the business which offer the highest apparent return, such as exploration and production, while leasing assets which appear to offer a lower return, such as tankers and service stations.

The fallacy in this type of reasoning is its underlying premise that a company has a choice as to which of its assets it will finance. Unfortunately, this is rarely ever the case. There are many factors which determine a company's total capital requirements, but the method of financing employed is not one of them. Such factors as the technology involved and the scope of operations, policy decisions such as the level of inventories to be carried or the credit terms to be extended, all tend to fix the total amount of capital required. Since no one is likely to provide these assets free of charge, the choice remaining to the financial manager is how to finance them.

If you are going to operate a department store, in addition to merchandise and receivables you will

[1] "The Financial Community Looks at Leasing", Richard F. Vancil and Robert N. Anthony, HARVARD BUSINESS REVIEW, Nov.-Dec. 1959.

require land and a building. In other words, you are in the real estate business whether you like it or not. And certainly you can't get out of it by merely transferring title to the property while continuing to operate it under a long-term lease.

And if you are going to have an integrated oil company, you will require tankers and service stations in order to realize the high returns which the production and exploration activities appear to offer.

The essential point here is that leasing is not a way of **avoiding** financing. It **is** financing. And it makes no difference whether you own profitable assets and lease unprofitable assets or vice-versa so long as you require both kinds.

The important question is the cost of leasing relative to other financing alternatives. The introduction of calculations which purport to show the relative profitability of various classes of assets only serves to obscure this basic issue.

After all, by financing the acquisition of assets with borrowed money, a company avoids tying up its present working capital. But suppose that a bank or an insurance company were to solicit loans on the following basis: "Use our money to finance your fixed assets instead of distrubing your own funds. Your money can earn 20 per cent in the form of working capital versus the 7 per cent you will pay to use ours." I think it would find few takers so long as there were other lenders offering money at 5 per cent or 6 per cent. The same reasoning should apply to lease financing.

2. We frequently hear that leasing makes it possible to pay for an asset as it is used, and out of pre-tax earnings. This is true but by no means unique. The pay-as-you-go feature is characteristic of all credit arrangements. And while rent is in most cases a deductible expense item, so are interest and depreciation. The real question is which alternative offers the greatest cash flow advantages.

3. Another claim made for leasing is that it offers a hedge against inflation. You get the asset today and pay for it with depreciated dollars in the future. This again is true of all types of debt financing, not just leasing. Futhermore, leasing suffers in comparison with direct borrowing in that the company does not own the asset after it has finished paying for it. With the prospect of continued inflation, the loss of residual values may prove a substantial disadvantage to companies leasing their assets.

4. It is frequently pointed out that leasing avoids any dilution of common stock ownership or control. This is an advantage when compared to equity financing, but it is an advantage which is shared by all forms of straight debt financing.

5. Another advantage claimed for leasing is that it provides 100 per cent financing of an asset. This feature is unique when compared to a secured loan, which is generally limited to some percentage of the collateral. However, most industrial loans today are unsecured, based upon the general credit of the borrower. The lessor also looks primarily to the general credit of the lessee as the security for his investment.

These represent the principal arguments commonly advanced in favor of lease financing, with the exception of two which I will touch upon shortly: possible tax benefits, and the so called "balance sheet" advantages.

My contention is that when lease financing is viewed as merely another form of borrowing, these claimed advantages will not stand up under any logical analysis. By this I do not mean to imply that there is no case for leasing. I merely mean that the reasons which are usually called upon to justify it are the wrong ones.

Evaluation of Proposals

An approach which I submit to you as a more realistic basis upon which to evaluate leasing proposals is the following:

Lease financing should be utilized whenever it can be justified in comparison with other debt financing alternatives. By this I mean that it must either: offer cost savings over direct borrowing; or, it must be available where an equivalent amount of debt financing is not available; or, it must offer some offsetting advantage which in the opinion of management justifies its higher cost.

Let's examine these three alternatives in order.

The question of relative costs involves the consideration of many factors. Two that come to mind immediately will generally work to the disadvantage of leasing.

One is the fact that investors will normally seek a higher return on funds advanced on the basis of a lease as opposed to a direct loan to the same company. This differential is commonly in the range of from ½ of 1 per cent to 1 per cent.

The other involves the disposition of the asset upon the termination of the lease. If the asset is lost to the lessee or if he must then repurchase it or continue to pay rent for it, this represents an added element of cost.

Despite these possible disadvantages, there can be offsetting cost savings implicit in a lease arrangement.

Tax Advantages

Some possible tax advantages which I might mention, include the following:

—The possibility of cash flow advantages through the more rapid write-off of the leased asset. This used to represent a substantial advantage for leasing, but this advantage has been largely nulified by the accelerated depreciation options introduced in the 1954 code.

—Or, the possible advantage of being able to write off land values for tax purposes through leasing. The validity of this advantage depends largely upon the extent to which the lessee discounts the potential value of the land at the expiration of the lease.

—Finally, there can be advantages in the sale and leaseback of older assets which will result in a substantial capital loss or capital gain, which can be effectively utilized by the company.

All of these potential tax savings should be carefully scrutinized in the light of the latest tax rulings, of course. But to the extent that they are valid, they should be taken into consideration in any cost comparison.

Another possible cost advantage of leasing can accrue to companies engaged in production under "cost-plus" government contracts. By leasing equipment under leases tailored to the term of the contract, the company can charge off the full cost of the equipment to the government. If it were owned, the equipment would have to be depreciated over its normal life.

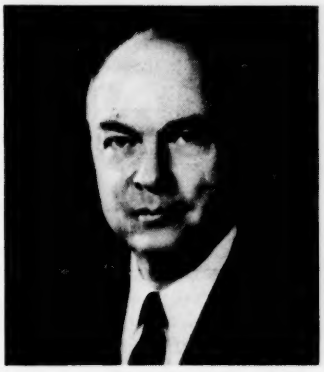
There are other possible cost differentials, such as the savings on the purchasing and disposal of vehicles which the fleet leasing companies claim they can effect. All of these cost factors must be taken into consideration in determining the advisability of financing by means of a lease. The question of the method to be used in making such a comparison is a highly complex one and there are several possible approaches. Perhaps the simplest is to compare the lease arrangement with ownership financed by direct borrowing at the company's current borrowing rate, assuming a repayment schedule equivalent to that which the lease entails.

Another approach that is particularly adaptable to those companies which use the discounted cash flow approach to capital investment decisions is the method which essentially involves reducing the lease payments to an equivalent amount of debt and then computing the return offered by the project under a lease arrangement, independent of its financing cost. A similar calculation can then be made for ownership and the two rates of return compared.

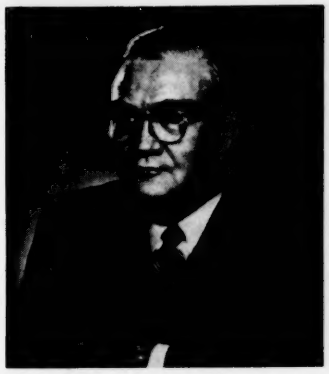
Such calculations of relative costs lose most of their significance in those situations where the leasing alternative is available to a company that could not raise an equivalent amount of money through any form of direct borrowing. Considering the nature of the lease financing process, it is doubtful that situations of this sort will be common. As I pointed out earlier, the ultimate sources of funds for lease transactions are institutional investors who are primarily interested in the credit standing of the lessee. These institutions will not usually finance a lease transaction for a company to which they would not be willing to lend an equal amount on a direct basis.

There are possibile exceptions to this. One is where existing loan agreements or indentures restrict additional borrowing but will permit additional leasing. However, restrictions on lease commitments are now more common in loan agreements and it can be expected that they will become even more common as the use of lease financing becomes more widespread.

Another possibility is that a man-



Eric Jonsson, chairman of the board, Texas Instruments, Inc., Dallas.



Frederick C. Gardiner, chairman, the Municipality of Metropolitan Toronto.

Top Speakers Slated for A.I.D.C. Meet

ATLANTIC CITY. The spotlight for developers is on this resort city where the 1960 conference of the American Industrial Development Council will be held at Chalfonte-Haddon Hall March 27-30.

Conference Program Chairman W. C. Windsor of Dallas reports that his committee has lined up a top slate of interesting and informative speakers who will discuss a variety of topics in the development field.

Among those who will be on the program is Erik Jonsson, Dallas, Chairman of the board of Texas Instruments, Inc., a man with extensive business and industrial experience, particularly in growth industries.

Before joining his present organization, Mr. Jonsson held positions with Aluminum Company of America and Dumont Motor Car Company, Inc. In 1930 he came with Geophysical Service, Inc., predecessor to Texas Instruments, as superintendent of that company's laboratory in Newark. Four years later the firm moved to Dallas. Mr. Jonsson was that same year named secretary of the corportion and subsequently treasurer and vice president, in 1939 and 1942, respectively. After rapid growth the company evolved into Texas Instruments, and Mr. Jonsson was made president in 1951 and board chairman in 1958. He is a member of the board of several other companies and active in a great number of civic and business organization endeavors.

Another outstanding leader to be on the program is Frederick C. Gardiner, Q.C., chairman of The Municipality of Metropolitan Toronto. Member of the law firm of Parkinson, Gardiner, Roberts and Conlin, Mr. Gardiner is an officer of two companies and a director of several others. He is a graduate of the University of Toronto, and an active participant in many societies and organifor 12 years and Warden of the County of York in 1946, has been chairman of the Metropolitan Council since 1955.

Additional men who have accepted invitations to speak at the meeting include Robert D. Courtright, projects engineer for the Facilities Location Department, International Business Machines; Robert E. Johnson, economist and actuary, Western Electric Company; Melvin D. Peach, executive assistant, The New England Council, Elmer J. Krauss, president of Elmer J. Krauss Organization, Inc., and Industrial Development Editor McKinley Conway.

Besides the excellent business program that has been arranged, Mr. Windsor said, special preparations have been made for entertainment, including tours, luncheons and dinners, and a ladies' program.

In addition to meeting rooms, approximately 500 rooms have been reserved at the hotel for members of A.I.D.C. who plan to attend.

ufacturer may extend lease terms to a customer whose credit standing would not otherwise justify the amount of debt involved. The manufacturer may be willing to assume the additional credit risk in order to make the sale.

But even where other forms of borrowing are available at a lower cost, might there not be some offsetting advantage inherent in the lease alternative which would justify the higher cost? This, of course, is inevitably a matter of judgment for each individual company, depending upon the relative weighting given to certain factors. There are several such possible advantages that might be mentioned.

Balance Sheet Advantage

I think that by far the most important is the so-called "balance sheet advantage" of leasing. We often hear that leasing does not disturb existing credit lines, or that it enhances a company's financial ratios. More to the point, there exists the possibility that since lease obligations do not appear on the balance sheet, their existence will not affect the company's credit standing. As a result, through a combination of leasing and borrowing, a company might be able to secure a greater total amount of credit than it could through borrowing alone.

This possibility raises several important questions. The first, naturally, is whether or not this advantage is a valid one. After all, the same institutions that finance lease deals are also the primary sources of borrowed funds. Is it reasonable to expect that these investors will make investments on the strength of lease obligations and then ignore those same obligations in evaluating the lessee's credit standing for other purposes?

The Harvard Business Review Survey cited earlier sheds some light on this question. The respondents were asked whether in making an analysis of a company's credit standing they took lease obligations into consideration where they were known to be material.

Virtually all of the respondents indicated that they did. Some 77 per cent of the analysis indicated that they make use of formal techniques in evaluating lease obligations. These include capitalizing lease rentals to obtain an equivalent amount of debt to be added to the balance sheet and adding rentals to interest in computing the coverage of fixed charges. The remaining 23 per cent presumably employ informal procedures.

I think that there are some qualifying comments that should be made here with respect to the attitude of the financial community toward lease obligations and the bearing which this attitude should have upon a company's decision as to whether or not to use lease financing.

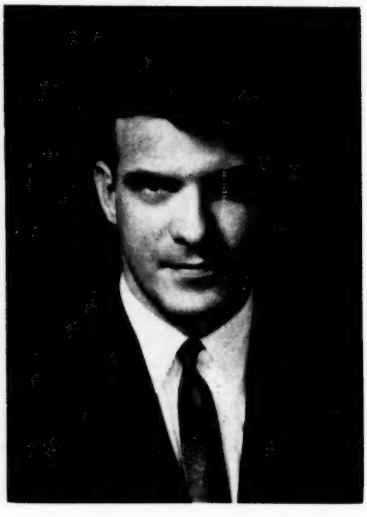
First of all, there is strong reason to doubt that the analytical procedures being employed by financial analysts are as comprehensive as the above figures would suggest. A follow-up survey led the authors of the Harvard Business Review article to conclude that many of the respondents had indicated that they thought should be done, rather than what they do as routine practice. My own feeling is that the present evaluation of lease obligations in financial analysis is neither as all-inclusive nor as refined as it might be. Some of the reasons for this are: The lack of adequate information being furnished by companies with regard to their lease commitments; The lack of standardized procedures for evaluating the information that is available; and, a certain amount of inertia on the part of the analysts.

Credit Standing

Another question that might be raised is what effect a moderate amount of leasing will have upon the credit standing of a company which otherwise has a relatively sound and conservative capitalization. I think that the answer is probably no effect whatever. In the first place, most companies have not been required to provide information concerning their lease commitments unless they are considered material, and the tests of materiality have exhibited a considerable amount of elasticity at times. But regardless of whether such commitments are reported or not, I think it is doubtful that they would have any material effect on an otherwise sound credit standing. After all, the various categories of credit rating are quite broad. It it not a matter of clearly defined ratios, where if you cross a certain dividing line you drop down a notch.

Does this mean that if lease financing is used in moderate amounts, it need not be considered a form of borrowing nor compared to the cost of debt? I don't subscribe to this. The fact that the amount is not material does not support such a conclusion. Neither would an equivalent amount of debt be a material factor, so that the question is still which alternative offers the greatest advantage.

After all, this question of whether lease financing can in fact make a greater amount of credit available is pretty much an academic one for a company whose total debt and lease obligations are within conservative limits. If there is any advantage it can only accrue to a company that has pushed the total amount of its borrowing above what would be regarded as a sound limit.



LEASE FINANCING EXPERT

With varied experience in the finance field, Donald R. Gant has been a member of the underwriting department of Goldman, Sachs & Company, New York investment bankers, since June of 1954. The functions of this department include the flotation of new security issues, the direct placement of security issues with institutional investors, the negotiation of mergers and acquisitions, and advising the firm's corporate clients on general financial matters.

Mr. Gant has had articles published in the *Harvard Business Review* and *Business Scope*. He received his B.S. in economics from the University of Pennsylvania in 1952 and Master of Business Administration degree from Harvard University in 1954.

This brings up another point that I would like to comment on with regard to this so-called "balance sheet advantage". I think that it suggests a line of reasoning that goes something like this:

—The only significance of debt is the effect it has on the balance sheet appearance and on the opinions which analysts and lenders may have regarding the company.

—Except for this, a company would be wise to raise all of its capital requirements through various forms of debt and thus obtain the maximum amount of leverage for its common stockholders.

—The objective, then, should be to keep conventional borrowing within the limits of certain ratios which analysts like to see, and then circumvent those ratios through various means of off-the-balance sheet financing, such as leasing.

Is Reasoning Sound?

I question the soundness of this kind of reasoning. I think that there is more significance to debt than merely the outward appearance that it gives. If it has implications to fianancial analysts and lenders it has even more important implications to the owners of the business, the stockholders whom management represents. For this reason, I feel that a sound financial management will impose its own limitation on the amount of fixed obligations it is willing to incur, whether in the form of debt or leases, and whether they appear on the balance sheet or not.

There are other more or less intangible factors which might, in the opinion of management, justify the use of lease financing. One is freedom from the restrictive covenants which are customarily imposed by debt agreements. These include limitations on the payment of dividends and the incurring of additional debt, and the required maintenance of a certain minimum amount of working capital. As yet, restrictions of this sort have not made their appearance to any extent in financial leases.

Or leasing might offer a convenient method of financing at the particular time. The amount of capital required may be considered too small to justify a term loan or debt issue, so that leasing might be resorted to in spite of a higher cost.

Along with these off-setting factors which might tip the scales in favor of leasing, I might mention two possible disadvantages.

One is the possibility that leasing can result in a loss of control over capital expenditures. Unless leasing is controlled at the operating level, the result may be that division managers will be able to obtain assets through leasing which they were denied appropriations for in the capital budget. Some companies have recognized this possible danger by instituting a separate leasing budget.

A corollary of this is that leasing may result in distortions in the evaluation of intercompany performance. To the extent that leased assets are used, the comparison of return on invested capital between divisions can be distorted. Some companies have overcome this by capitalizing lease rentals in measuring return on capital investment.

In conclusion, I think that the growing trend toward lease financing has important implications for at least three groups.

First, for the **public accounting profession.** I feel that there are serious deficiencies in the present accounting standards for the reporting of lease obligations. The accountants might well heed the words of an eminent accountant who wrote some 25 years ago: "The essential thing that is obtained when building and equipment are erected or otherwise acquired is not the physical plant but the services it is expected that such plant will render." The leasing companies have made liberal use of this type of reasoning in their sales literature. But, unfortunately, the accounting profession continues to account for fixed assets on the basis of legal form rather than economic substance.

Next, for the **financial analysts.** I think that the analysts may have either overstressed the importance of financial ratios or at least have created the impression that these ratios represent a final judgment rather than being merely analytical tools which are helpful in reaching a judgment. This, in turn, may have caused some companies to adopt practices which have no economic justification.

And finally, some **corporate financial managers** might well re-examine their policies to determine whether they have made the most intelligent use of the various financing alternatives available to them.

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A COMMUNITY ORIENTED COMPANY:

ASSOCIATED SPRING

by
Walter E. Froehlich
Vice-President
Associated Spring Corporation
Bristol, Connecticut

In site selection the objective of Associated Spring is "finding a community atmosphere compatible with its philosophy of plant location for optimum customer service." How the company goes about doing this is outlined here by the man who heads its development activities . . .

In 1871, the Great Chicago Fire gutted the factory of the William D. Gibson Company, now the Gibson Division of Associated Spring Corporation. This caused the first of several plant relocations within Chicago limits since then. The latest move occurred in mid-1959, when the Corporation closed the Gibson Division's Chicago plant and built a new facility in Mattoon, Illinois, 178 miles south of Chicago.

Strategic plant location is very important to Associated Spring Corporation in order to serve adequately a wide variety of manufacturing industries such as automotive, aircraft, electrical, electronic, appliances, machinery, and many others. As the world's leading manufacturer of precision mechanical springs, small stampings, wire forms, special fasteners, small assemblies, and cold-rolled spring and specialty steels our market research and analysis have proved this need for correlation of plant and customer location.

Selection of Mattoon reflected Associated Spring's objective of finding a community atmosphere compatible with its philosophy of plant location for optimum customer service. By tradition, the Corporation is a community-oriented organization. It feels it understands community life. In turn, it operates the kind of business easily appreciated by local residents, whether or not they are employees.

Regardless of the location of its manufacturing facilities, Associated Spring encourages full participation by workers in community life. Too, it expects the community to follow its own progress with interest. Such a business climate, the firm has found, best serves the interests of its customers, its employees, and its stockholders. The Corporation's history exhibits this philosophy, and Gibson Division has adhered to this way of doing business since its inception.

In 1923 the William D. Gibson Company joined with the Wallace Barnes Company, of Bristol, Conn., and the Raymond Manufacturing Company, of Corry, Pa., to form Associated Spring Corporation. Today, the Gibson Division is one of fourteen manufacturing units which serve customers throughout the United States, Canada, and Puerto Rico. Each Division is a complete spring plant, and draws upon the knowledge and skills of all other Divisions through interchange of information on design, production, research, and sales service.

The major reason for closing the Chicago plant is simply put. It had become unprofitable. When repeated efforts to remedy this situation proved fruitless, only one solution remained — close the plant. But service to customers has always been a major consideration of the Corporation and closing the Chicago plant would leave thousands of customers in the mid-continent area in a very vulnerable position. So it was decided to find another location where a new, modern plant and a more favorable business climate could be combined with profitable operations.

At corporate headquarters in Bristol, Connecticut, top management established the broad-scale objectives of the plant-location program. These included, not necessarily in order of importance:

1. A site from which the Gibson Division could serve the same marketing area as in its previous location.
2. A site with labor rates in keeping with the national average for the spring industry.
3. A location with adequate facilities, possibly including a building, convenience to low-cost transportation, local availability of raw materials, and a relatively stable local tax structure.
4. Location in a community with an adequate local supply of skilled and unskilled labor with industrial experience.

Responsibility for site selection was assigned to a corporate vice-president. This executive chose a team of six to survey and investigate sites. Corporate and Divisional management were represented, including market research, plant engineering, industrial engineering and employee and community relations.

First task of the team was analysis of information previously accumulated. With this preliminary work before them, the team first established in rough terms the type of locale that would be suitable.

Attitudes expressed by top management suggested that the ideal site location would be:

ASSOCIATED SPRING

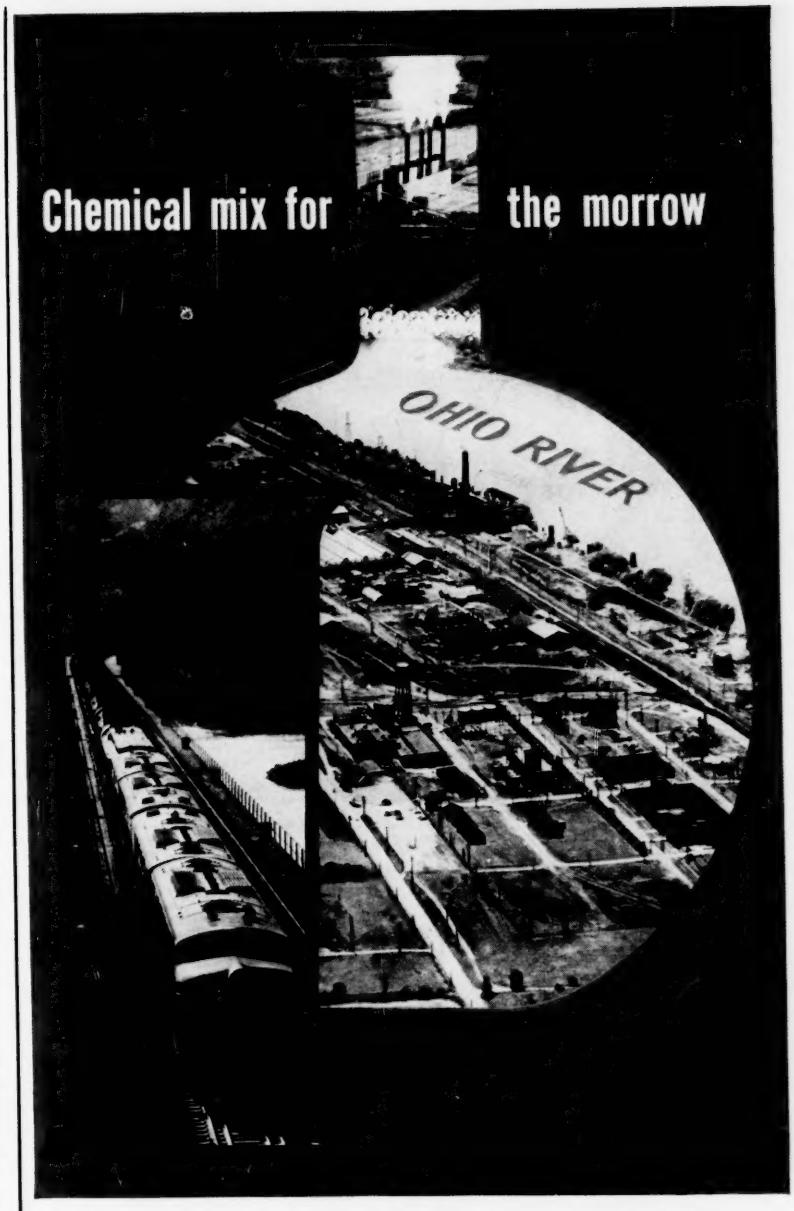
1. A small community.
2. Located within 200 miles of Chicago.
3. Wage rates in line with the national average for metal-working in general and springmaking in particular.
4. A well-established community with a relatively stable population.
5. Including within its boundaries a number of metalworking plants, operating profitably, producing sufficiently complex metal products as to require some degree of skill of workers.
6. A community with a strong sense of local pride, evidenced by active service organizations, in which representatives of local industry participated but did not dominate.
7. Evidence of a healthy work attitude among the labor force, to be verified by discussion with management personnel of local industry.

With these requirements in mind, the survey team reviewed on paper about one hundred locations that were potentially suitable. Elimination left a list of 43 different communities, each requiring a personal visit. All communities fell within a band extending between 50 to 200 miles southeast of Chicago and sweeping in an arc to the south, southwest, and into Iowa. (See Fig. 2.)

The survey team broke into groups of two at this point, each pair consisting of a corporate and a Division man. To each pair was assigned a contiguous group of communities for investigation. Each pair spent twelve continuous days visiting communities in the locale assigned.

Upon arrival in the individual town, team members would initiate contact with the local chamber of commerce, officers in local service clubs, representatives of organizations offering plant facilities, management executives in major industrial plants within that town, and any other suitable sources of information. Once on the site, it became quickly obvious that many communities could be eliminated as potential plant sites.

All 43 communities were dually evaluated. On meeting at the end of twelve days, the six-man survey team discussed each possible site. In preliminary analysis, communities



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were evaluated broadly without attempt at direct comparison. Considerations at this stage were: distance from Chicago, availability of building sites and of labor, and the community attitude.

Lack of interest on the part of the community was not considered sufficient reason for rejection. From personal experience, team members realized that many communities fail to comprehend the significance of a new industry entering the community. Of the 43 communities surveyed, the team found that about one-half chose to point out community benefits on an official level. In the remaining instances, necessary information was obtained from individuals residing within the town — usually management personnel of local industry.

Discussing plans which led up to establishment of an Associated Springs Corporation plant at Mattoon, Illinois, are (left to right) Company Vice President Walter E. Froehlich; Arnold Sandstrom, Robert E. Hargraves, and Reginald C. Morrell of the planning group. In the center of the table is a reprint of the report "I. D. Looks at Mattoon" which was instrumental in attracting the company to the Illinois city.

I. D. REPORT INFLUENCES SITE CHOICE

An interesting sidelight on the operations of Associated Spring Corporation is that an area survey conducted by the staff of INDUSTRIAL DEVELOPMENT and published in the magazine helped the company select a site for a new plant. Here's what Vice President Walter E. Froehlich had to say in a letter to I.D.:

"The special report on Mattoon, Illinois, played a most important part in the planning of new operations for our Gibson Division. The selection of Mattoon was the result of a study of 43 communities in Illinois. We used 12 major yardsticks for evaluation of these communities and covered such areas as labor climate, business climate, size, available work force, taxes, etc.

"The report as published by Conway Publications was primarily used in presenting the qualifications of Mattoon to our corporate officers and board of directors. This report helped, as well as simplified, the report that we had to compile in order to obtain approval by our board. We have also used copies of this report in selling the community to the many individuals who are being transferred to work in our new operations."

Another comment, made by George M. Pendell, executive secretary of the Mattoon Association of Commerce, referring to the Associated Spring site survey team, noted that: "They had copies of the I.D. reprint, which indicates that they knew about us before dropping in for their first look. It does pay to advertise."

Editors Note: The editors of I.D. particularly appreciated these letters, for few readers who have been aided by the magazine take the trouble to say so. Our special thanks go, therefore, to Mr. Froehlich and to Mr. Pendell, and we hope to get more letters like these!

Twenty-nine towns and cities were eliminated following stage one analysis. The 14 communities remaining each received a point evaluation, using the technique outlined in Tables I and II. Three communities were finally recommended to top management. Mattoon was one of these.

Selection of Matoon, Ill., as the site for Gibson Division's new spring plant followed exhaustive evaluation of all factors considered important to Associated Spring, Choosing between the three finalists was difficult. Probably any one of them would have been suitable. Proximity of Mattoon to shipping facilities, its central location, size and type of population, and the general tenor of the community were the important factors leading to preference over other sites. The activity concluding with a new plant in Mattoon typifiies the approach of the spring-making concern to maintenance of a healthy corporate body.

Expansion at Associated Spring in the past also is a story of continued service to customers. All capital improvement or new plant locations have received close evaluation as to their possible influence on the community. Although corporate responsibillity to stockholders dominates as an executive motivation — as with all publicly held firms — consideration of community life, along with service to customers, follows closely in relative importance. Younger firms than Associated Spring may tend to view their growth prospects and potential

FIGURE 1

Factors in Selection of a New Plant Site

CRITERIA*	WEIGHT**
Community facilities	2
Labor climate	5
Site	1
Utilities	1
Tax Plans	1
Residential housing	1
Distance from Chicago	1
Available work force	1
Available transportation	1
Available tooling and plating	1
Community size	1

*Each community rated on each criteria as follows:

0—poor
1—fair
2—good
3—excellent

**Point evaluation of each community obtained by multiplying each rating by the weight factor shown, then adding all weighted evaluations.

FIGURE 2

WEIGHTED EVALUATION OF COMMUNITIES CONSIDERED AS MIDWEST PLANT SITES

Town	Community Facility	Labor Climate	Site	Utilities	Taxes	Residential Housing	Relocation Costs	Available Force	Transportation	Tooling & Plating	Community Size**	Total Points (48 max)***	Remarks
A	6	15	3	3	2	3	1	2	3	0	3	41	
B	6	15	3	3	3	3	3	3	3	1	3	46	Too Far East
C	6	15	2	1	3	3	3	3	3	2	3	44	
D	6	15	3	1	3	3	3	3	3	2	3	44	
E	6	15	3	3	3	3	2	3	3	2	3	46	Too Far East
F	4	10	3	3	3	3	3	3	2	1	2	37	
G	6	10	3	3	1	3	2	3	2	1	3	37	
H	6	15	0	0	0	0	0	0	0	0	0	21	
I	6	5	2	2	1	3	1	3	3	3	1	30	
J	6	10	2	3	3	2	2	2	3	1	2	36	
K	6	5	3	3	1	3	1	3	3	1	2	31	
L	4	15	3	3	3	2	2	3	2	..	2	39	
M	6	15	3	3	2	3	1	2	..	..	..	35	
N	6	10	3	3	3	2	..	3	3	2	2	37	Too Far East
*X	4	15	3	3	2	3	1	3	3	2	3	42	Site Selection
*Y	6	10	1	2	1	2	3	1	2	3	2	33	
*Z	2	5	2	1	3	1	2	2	1	1	1	21	

*Highest rating figure means the best of the three.

**Community size rating 3 points for 15,000 to 50,000 population over or under was rated less.

***Evaluations A through N are second stage reviews; X through Z are third stage and represent three communities selected from second stage reviews.

in a different light, but Associated Spring's experience indicates local business climate to be a dominant force in continued corporate prosperity.

In the period of industrial activity and expansion following World War II, Associated Spring Corporation has grown steadily through enlargement of existing plants and the acquisition or building of new facilities. These are in addition to the development or purchase of capital equipment that enable it to keep pace with the needs of its customers. The Mattoon plant is the latest, but not the last, in this series of continuing efforts on a planned basis to keep pace with the demands of its markets. It is a clear example, also, of the Corporation's efforts to find that happy combination of plant location convenient to markets and community atmosphere conducive to profitable operations.

Today, Associated Spring operates three plants in Bristol, Conn.; and one plant each in Syracuse, N. Y.; Corry, Pa.; Plymouth and Ann Arbor, Mich.; Dayton, Ohio; Milwaukee, Wis.; Gardena (Los Angeles), Calif.; Hamilton, Ont.; Ponte Claire (Montreal), Que.; and Puerto Rico, in addition to Mattoon. It also has sales offices in Cleveland, Ohio, and Chicago, Ill. In addition, it has recently entered into an agreement with an Argentine group to supply technical information for the manufacture of precision mechanical springs and, through this outlet, expects to become an important factor in the spring business in South America. It can readily be seen, then, that this is a dynamic enterprise that may well be investigating any community at any time to determine if it is a potential plant-site location for a further expansion move.

RESEARCHER AND DEVELOPER

An All-American football player at Tufts University, the school from which he received his engineering degree, Walter E. Froehlich has had a distinguished career in industry and is vice president of Associated Spring Corporation, Bristol, Connecticut. He Joined the company in 1935 as an engineer with the Wallace Barnes Division, and he held a number of supervisory positions in an engineering or production capacity prior to his appointment as factory manager of the division in 1948. He was made general manager of the four Associated Spring divisions at Bristol in 1953 and also was elected a director. He was made a vice president in 1955 and in 1959 assumed responsibility for all engineering functions as well as for direction of corporate research and development activities. Mr. Froehlich is active in a number of trade, civic and charitable organizations.

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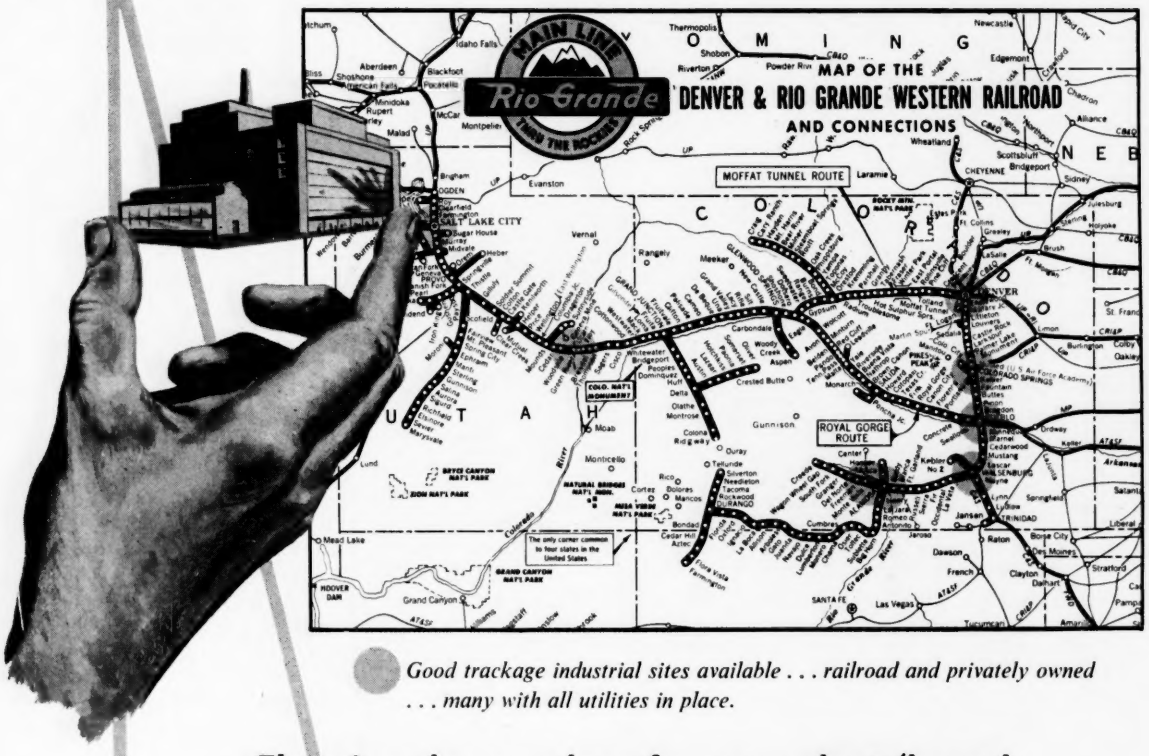

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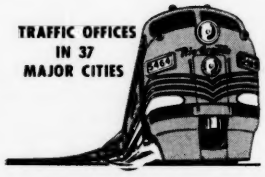

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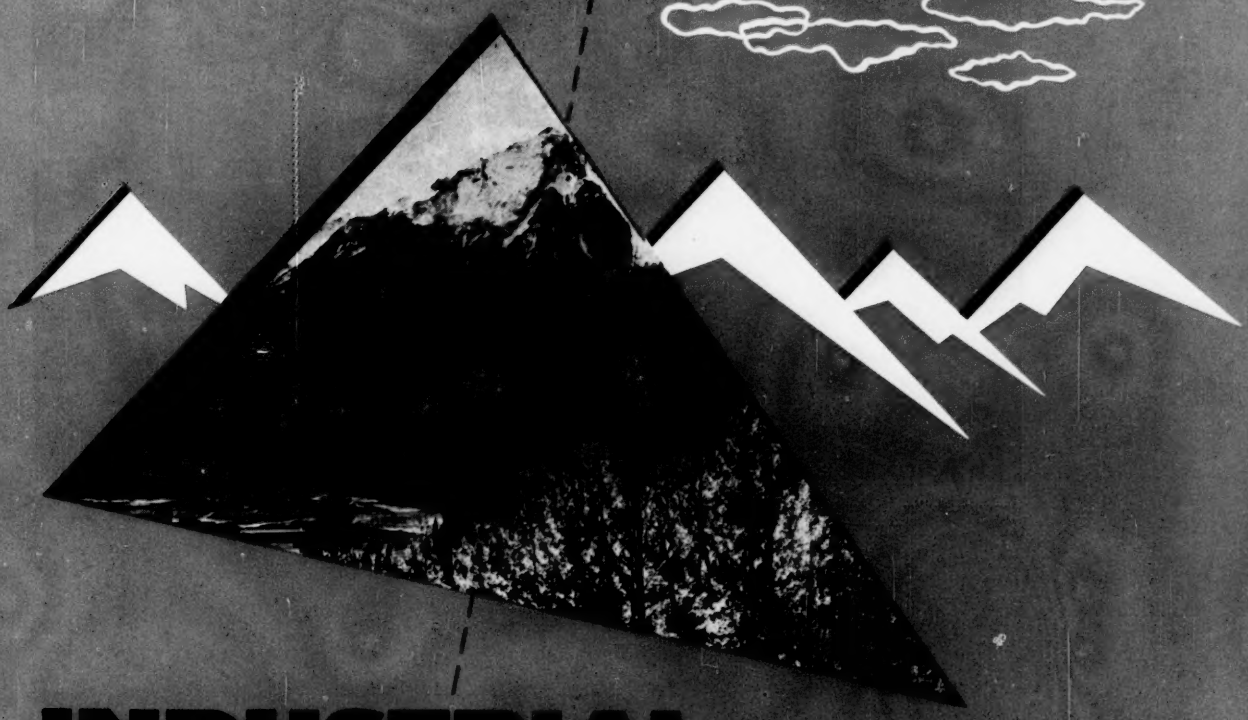


INDUSTRIAL COLORADO

Colorado's mountains and its central location in the rapidly developing western half of the country are major assets in its drive for industrial growth. Its people are working hard to build a business climate to match the favorable physical climate.

AN AREA SURVEY BY

INDUSTRIAL DEVELOPMENT MANUFACTURERS RECORD

THE INTERNATIONAL GUIDE TO INDUSTRIAL PLANNING AND EXPANSION

Denver's skyline is punctuated by new office buildings as its importance as the metropolis of the Mountain States is increasingly recognized. The State Capitol looks out eastward across the vast expanses of the Great Plains and westward to the Front Range of the Rockies.

BIRTH OF

Governor Steve McNichols has taken two major steps to make Colorado still more attractive to industry — a thorough-going revision of the state's tax laws and the establishment of the Resources and Community Development Division within the State Government.

By FRANK H. STEDMAN

The recent surge of big-name companies of the aircraft-instruments-electronics complex into Colorado has set many residents to wondering if they are not witnessing a reenactment of Colorado's gold rush a century ago. Note that it came in 1859, ten years after the California affair.

The twentieth-century counterpart is the emergence of well-rounded industrial complexes outside the traditional manufacturing belt between Boston and St. Louis. The California complex is now thoroughly established, having got underway some time in the 'Twenties, and another is taking form in Texas.

There is no doubt that what has been happening in Colorado is a long step forward in this direction. There is already an excellent mix of industries in the area, ranging from a big steel producer to a wide variety of consumer items and to such an

Colorado's industrial growth is now running at full stride. Between 1954 and 1958, according to recently released Census data, the value added by manufacturing shot up from $472 million to $763 million. This represents an increase of 62 per cent, a rate of growth surpassed by only four states, three of which started from a much lower base.

A NEW EMPIRE

intricate technological achievement as the Titan missile.

What prompted this surge into the state?

Let us say that you like to spend a great deal of your spare time out of doors, even in winter. You like to hunt and fish and ski and play golf.

But you need access to a healthy, well-schooled, mechanically apt, eager-to-work labor force. You want both a good-sized immediate market, say about 2 million people, but would like to be able to reach the entire country on occasion.

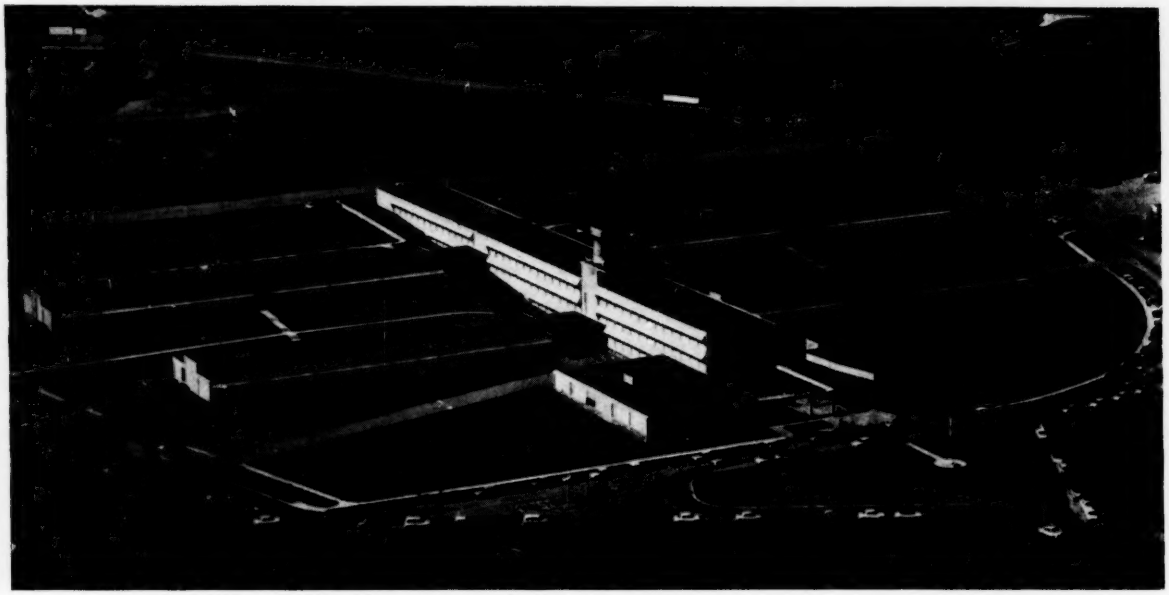
You want to be in an area that contains a well-developed metropolitan center, with all its cultural advantages and scientific facilities, but you can't abide being snarled in a traffic jam in the blighted area of some overgrown city.

You want fair taxes, a friendly state government, reasonable labor unions, and gas and electric power at competitive rates.

Then the chances are that you are already in Colorado, or are deep in plans to get started there.

Colorado's great push toward coming of age as an industrial area has come in the last decade and has been associated with the continuing tensions and rising defense production of the Cold War. In an important sense, it is an outgrowth of the favorable impression Colorado had made on the many military men and civilian technologists who were in the state during World War II.

At any rate, when unfolding missile technology and new developments in electronics began a new wave of plant construction, Colorado stood high on the list of possible areas. The notably pleasant but varied, four-season climate and the endless possibilities for outdoor recreation made it possible to recruit personnel much more easily than to some



Typical of the new industrial structures built in Colorado since World War II is this complex of laboratories at Boulder housing the newly established branch of the National Bureau of Standards. The line between research and manufacturing has become very thin.

less favored areas. The low proportion to total costs formed by raw materials costs in most of the new defense items freed company managements from some traditional considerations that had kept many earlier plants in established industrial areas.

The largest of the new recruits to the Colorado scene influenced by the factors referred to above is the Martin Company, which builds the Titan missile in Denver. Its plant opened in 1956 and has since been expanded to the point that employment is around 10,000; it is now one of the two largest employers in the state.

The parade of new plants includes major installations of Sundstrand, Minneapolis-Honeywell, and Stanley Aviation and only slightly smaller plants or research establishments of Beech Aircraft, Clifton Precision Products, Hamilton Watch, Thompson-Ramo-Wooldridge, Ohio Oil, Kaman Aircraft and others.

The parade is by no means over, witness the recent announcements by International Business Machines of a new plant in Boulder and by Hewlett-Packard of another in Loveland.

Concurrently, the Federal Government has not neglected Colorado. The most publicized instance is of course the new Air Force Academy in Colorado Springs, but of perhaps greater importance to industry is the large new Bureau of Standards laboratory in Boulder and the Atomic Energy Commission establishment northwest of Denver—which is manned mostly by Dow Chemical.

This technological revolution is not in any sense limited to incoming firms but has been met by diversification and expansion of local concerns, which participate both as sub-contractors and suppliers and as contributors to the proliferating industrial research activity. Stearns-Roger and Gates Rubber in Denver and Colorado Fuel and Iron in Pueblo, for example, rank up with the leaders in the number of their research personnel.

Industrial Diversity

The net result of this surge of new plants and new branches of industry is well shown by the 1959 Directory of Colorado Manufacturers, put out by the Bureau of Business Research of the University of Colorado. It lists over 2,000 firms in the state of which 131 had 100 or more employees. The astonishing thing about these 131 firms is that they are spread over 18 of the 21 major classes of industry.

This diversity is not apparent from ordinary census summaries of manufacturing, such as appear in the Annual Survey of Manufactures, because the disclosure rule masks one-third of both the employment and the value added by manufacture in the state.

As in many states, food manufacturing leads the list, with 46 firms employing 100 or more, one-

third of the total manufacturing employment, and a little better than one-quarter of the value added.

The food manufacturers employing more than 100 include several firms with more than one such plant. The canning firm, Kuner-Empson Company, has five such plants, the Great Western Sugar Company has eleven and the Holly Sugar Company has two.

Other important food manufacturers are Armour, Cudahy, Swift and five other meat packers, two milk companies, two other canneries, two flour mills, National Biscuit and six local bakeries, American Crystal Sugar, Russell Stover and two other confectioners, the Coors and Tivoli brewing concerns, and Bluhill Food.

The only two textile firms in Colorado employ less than 100 each, but there are a number of apparel concerns of which Bayly Manufacturing and George W. Prior, making men's work and sport clothes, are the largest.

Of the nearly 200 lumber and wood products firms, five employ more than 100, but none of the 100 or so furniture makers is that large. There are no less than eleven printing and publishing firms, including the big Denver, Pueblo and Colorado Springs dailies, two publishers of periodicals, and Shepard's Citations, a Colorado Springs firm known to lawyers all over the country for its legal publications.

The two largest chemical concerns are Shell Chemical in Denver and the big Du Pont powder plant in Louviers, southwest of Denver. The two largest employers in the petroleum and coal products lines are Broderick and Gibbons in Pueblo, makers of paving materials, and the American Gilsonite Company in Fruita, near Grand Junction. The Gilsonite plant, which resembles an ordinary refinery except for its large pile of powdered raw material, is of special interest both for its present operations and as a harbinger of things to come in the Grand Junction area when processing of solid hydrocarbons gets underway on a really large scale.

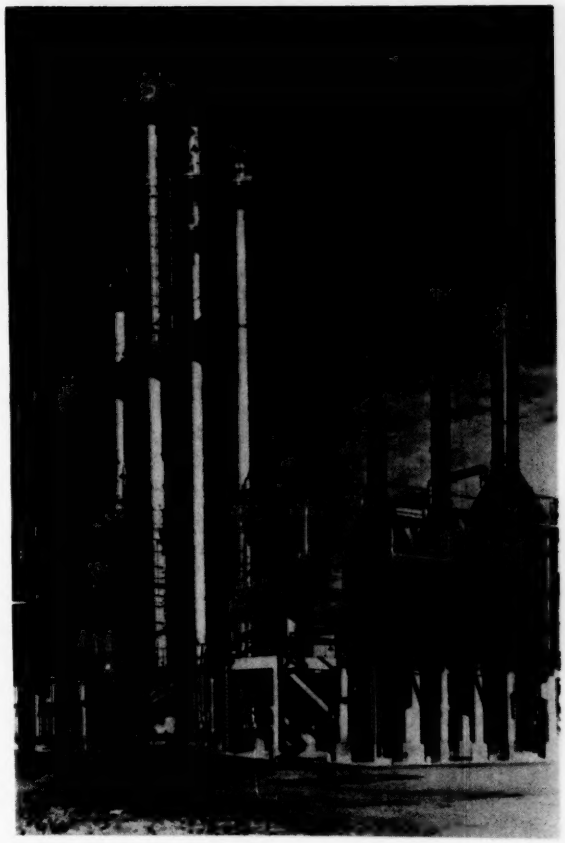
Conventional petroleum refineries are well established in Colorado — witness the Continental and Skelly plants in Denver — but refineries are noted for their large capital investment per employee and none of those in the state has 100 employees.

The two largest rubber and plastics firms include Ingwerson Manufacturing Company, makers of various plastic products, and Gates Rubber Company, one of the industrial giants of the state. That Gates has prospered so far from Akron, Ohio, in an industry noted for its centralization in a single city, is excellent proof of the feasibility of Colorado as a manufacturing headquarters.

The leather goods field also boasts a national leader in Shwayder Brothers, makers of Samsonite luggage. Locally available hides may have helped them get a start, but now that leather is little used in luggage, the fine reputation of their products is their chief asset.

Durable Goods

The stone, clay and glass firms in the state include two plants of the Ideal Cement Company, one near Fort Collins and the other near Canon City. Other firms are two refractory companies and several manufacturers of bricks, concrete pipes, and other building materials. Of interest in this category is Coors Procelain, an off-shoot of the Coors brewery and now a major factor in new industrial applications of ceramics.



The raw material at American Gilsonite's refinery — this is the catalytic cracking unit — is not crude oil, nor even a liquid. This plant is the only commercial producer in the United States turning out refined petroleum products from solid hydrocarbons. Output includes gasoline and a good grade of metallurgical coke that is much in demand in the aluminum industry.

Pueblo's night sky, lit up by the glow from the Colorado Fuel and Iron Corporation's coke ovens, justifies comparison with Pittsburgh and Youngstown. This plant, with a capacity of nearly two million tons of ingot steel annually, is the oldest and one of the largest integrated steel mills west of the Mississippi.

The primary metals field is dominated by Pueblo's great Colorado Fuel and Iron Corporation, with employment in excess of 10,000 and the largest in the state. It dates back well into the last century, and was for long the only integrated steel company west of the Mississippi. It was a major supplier both of rails to the spreading rail lines and of wire to the farmers when the open range was being fenced, so that it had a substantial share in building up the West.

The plant has its own coking coal nearby and limestone as well, but iron ore is brought in, much of it from Wyoming and Utah. Unlike some of the more recently established steel plants in the West, which have not had time to broaden their products line, Colorado Fuel and Iron is one of the most diversified plants in the country.

Other leading primary metals plants are the Leadville and Denver plants of the American Smelting and Refining Company, processing nonferrous ores, and four gray iron foundries in Denver, one of which is the American Manganese Steel Division of American Brake Shoe Company.

There are eight sizeable firms in the fabricated metals lines — Western Cutlery and Crockett Bit and Spur in Boulder and six Denver concerns making structural steel, boilers, and sheet metal products.

The nearest thing that Denver had to a traditional specialty — before the arrival of electronics and missiles — was mining and construction machinery, an outgrowth of the days when miners fitted up in Denver for their forays into the mountains. Well-known names represented among the twelve plants in this category are Gardner-Denver, Timken Roller Bearing, and Stearns-Roger, the last-named being internationally known in the design and construction of whole industrial plants.

The electrical machinery group includes two Colorado Springs makers of electric motors, an electronic components plant in Loveland, and a remarkable concern in Fort Collins, Forney Arc Welders. The management of this company has embarked on a diversification program at several plants in Fort Collins and Fort Morgan making such unrelated items as aircraft parts, boats, electric motors, and motion picture film.

Transportation firms include, most significantly, those making aircraft parts and accessories, the chief ones being Sundstrand and Stanley Aviation in Denver, Beech Aircraft in Boulder, and Aircraft Mechanics in Colorado Springs. Automotive parts are represented by Triplex of America in Pueblo, which makes aluminum pistons. There are also four makers of trailers and trucks and bus bodies.

Leading instrument makers include the Heiland Division of Minneapolis-Honeywell Regulator and the Metron Instrument Company, both of the Denver area.

The major firms involved directly in missile pro-

duction — the Martin Company and Thompson-Ramo-Wooldridge — are classified under ordnance, along with Dow Chemical, which operates the Atomic Energy Commission plant at Rocky Flats north of Denver, and the government-operated Pueblo Ordnance Depot.

The most interesting listing in the miscellaneous category is Wright and McGill, nationally known makers of fishing tackle.

The Market

Burgeoning population growth in Colorado itself, the rest of the Mountain States, and the West as a whole has completely changed the picture of the market that can be reached from a Colorado location. As recently as 1940, Denver had only 445,000 people in its metropolitan area, the state had 1.1 million, the eight Mountain States had 4.1 million, and the entire West only 13.9 million.

In less than two decades, the Denver metropolitan area has leaped forward to 848,000, according to the Survey of Buying Power, and now includes Adams, Arapahoe, Boulder and Jefferson counties as well as Denver City and County, which are coextensive.

The Bureau of the Census calculates the 1958 population of Colorado as 1.71 million, while the Mountain States had 6.5 million in that year. The tremendous spurt of population on the West Coast brings the total population of the eleven western states up to 25.4 million. If the West North Central and West South Central states are added, there is now a total of 57.3 million people west of the Mississippi River, with Denver almost exactly in the middle.

Meanwhile, Pueblo has grown from 52,200 to 99,500, Colorado Springs from 36,800 to 73,900, Grand Junction from 12,500 to 25,311, Greeley from 16,000 to 24,600, and Fort Collins from 12,300 to 21,900. Among the cities within the Denver Metropolitan Area, Boulder has shot up from 13,000 to 34,500, Englewood from 9,700 to 34,000, and Aurora from 3,400 to 37,300! Smaller places with good growth records include Longmont (7,400 to 14,300), Sterling (7,400 to 12,200), and Durango (5,900 to 9,900). Many other communities have shown more mod-

Winter sportsmen have their choice of thousands of square miles over 10,000 feet. Snow is generally deepest on the western slopes of the ranges, although conditions are frequently excellent right outside Denver and Colorado Springs.

erate but very healthy growth.

The vigorous population growth is strongly reflected in rising retail sales, which went from $1,250 million in 1948 to $1,727 million in 1954 for the state. The Survey of Buying Power estimates 1958 retail sales at $2,221 million. In 1954, Denver led with $696 million, while Colorado Springs had the remarkably high figure — for its size — of $119 million, and Pueblo had $90 million.

Colorado people are close to the national average in many respects; where they depart, the difference is generally in their favor, from the standpoint of a prospective employer. Distribution between urban and rural is 62.7 per cent urban, 22.3 per cent rural non-farm and 15.0 per cent rural farm; the comparable national figures are 64.0, 20.7, and 15.3. The median age is 29.5 years as compared with 30.2 nationally, and males outnumber females 100.8 to 100, whereas nationally the ratio is 98.6 to 100.

The white population — 97.9 per cent of the total — is made up of 79.4 per cent native-born, native parentage; 14.0 per cent native-born, foreign or mixed parentage and 4.5 per cent foreign-born. Comparable national figures are 90.0, 67.1, 15.7, and 6.7

The median number of school years completed by persons 25 years old and over is decidedly better than the national figure — 10.9 to 9.3. So is the ratio of Selective Service rejections to total registrants aged 18½ to 26 — 11.2 for Colorado and 18.0 for the nation in 1958.

Climate

Colorado's exceptionally livable climate results from an unusual combination of circumstances. The highest of the states in average elevation — about 6,800 feet, with the lowest elevation well above 3,000 feet — it avoids the scorching summer heat of low-lying interior areas at its latitude. It is a long way from the Pacific and the Gulf of Mexico, so that humidity is very low at the lower elevations where most of the towns are located.

On the other hand, its high mountain ranges intercept enough moisture to assure an adequate water supply. And in winter the prevailing storm tracks sweep down from western Canada toward the center of the country, leaving Colorado somewhat off-side. Due to the low humidity, even a day in the twenties lacks the bite of a wet, windy day in the forties in the East or Middle West.

Moreover, despite its mile-high elevation, Denver has a higher January average *maximum* temperature than any point of comparable latitude between it and the Atlantic coast, even including Atlantic City. Its January *mean* temperature is higher than that at comparable points everywhere between the Rockies and the Alleghenies. Under these circumstances, mid-winter golfing is commonplace.

The very low minimum temperatures at Frazer, 9,000 feet up in the Rockies, frequently show up in national weather forecasts, but they are far from representative of the areas where most of the population lives.

In summer, the effect of the low humidity is to make 90-degree midday temperatures, which are not common except at the lowest elevations, so tolerable that there is very little market for home air conditioning, especially since a July night without blankets is extremely rare.

Regular readers of this magazine will recall a map in the September 1959 issue that shows that most of Colorado has temperature-humidity index ratings comparable to the Upper Lake States, the Pacific Coast, and northern New England.

A curious feature of the climate of eastern Colorado is the "chinook", a warm dry wind that results when cold air from the west is heated and dried in its descent from the mountains. Even an extensive snow cover can disappear very quickly when a chinook is blowing, and they are highly regarded by the snow removal squads of city and state highway authorities, but not by skiers.

Mountains, Plains, and Farms

Colorado's 104,247 square miles entitled it to seventh place among the states until Alaska's welcomed dethronement of Texas dropped it to eighth. Like Gaul, it divides physically into three parts — an eastern third of High Plains, a central and southwestern third of the Rocky Mountains, and a western third of the Colorado Plateau.

The High Plains rise gradually from 3,350 to about 6,000 feet in elevation; they are traversed by the mountain-fed South Platte and Arkansas rivers and by draws which eventually collect to form the Republican River.

The Rockies, far from being a single massive range, are a series of discontinuous north-south ridges across the middle of the state plus a huge tangled core of mountains — the San Juan range — in the southwest. Colorado boasts of no less than 55 of the 71 peaks over 14,000 feet high outside of Alaska that are listed by the Department of the Interior. Not Pikes Peak or Longs Peak but little-known Mount Elbert leads with 14,431 feet, only 64 feet less than Mount Whitney in California.

The girls on horseback may be Chicago typists or New Orleans schoolteachers. Every summer the mountains are invaded by thousands of visitors from the vast flat areas to the east. Many come back year after year, as the combination of mountains, evergreen forests, warm days and cool nights is hard to beat.

Interspersed with the mountain ranges are several large basins, locally known as "parks". The largest of these, the San Luis Valley in southern Colorado, drains southward into the Rio Grande and contains parts of five counties.

The Colorado Plateau is geologically different from the Rockies in that it is composed mostly of horizontally bedded or slightly dipping sedimentary rocks. It has been so deeply cut by the Colorado and its tributaries and so much of it is at elevations of 10,000 feet and higher that the plateau is often considered as simply an extension of the Rockies.

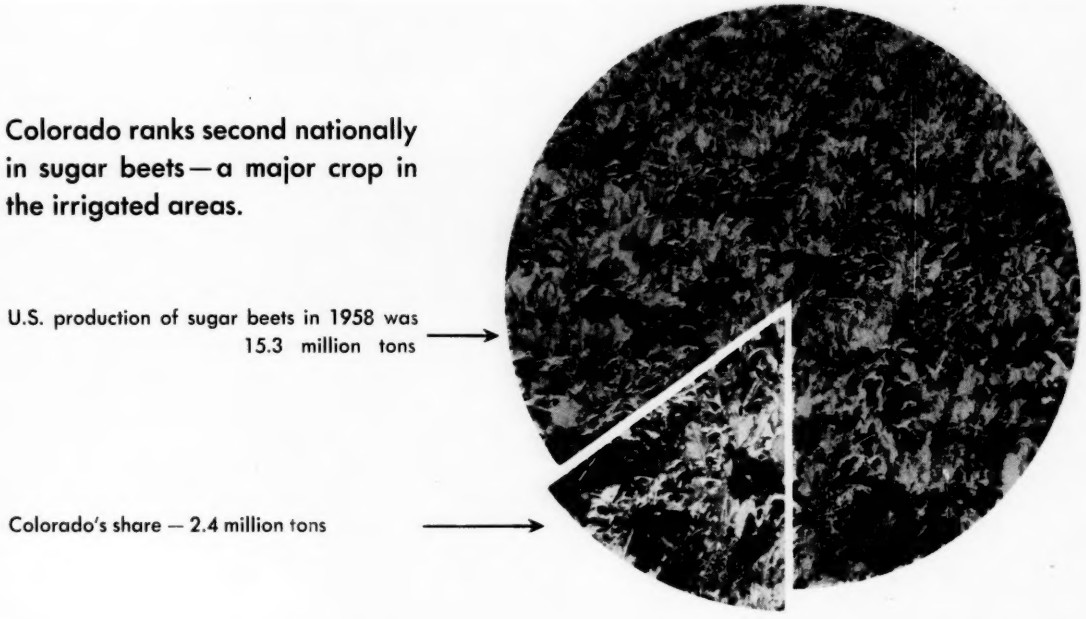
Economic regions correspond fairly closely to the physical regions. Most of the population is clustered just east of the mountains where streams from the mountains flow out onto the High Plains and provide ample water for irrigation, manufacturing and city development. Irrigation along the South Platte and Arkansas rivers accounts for two belts of dense population extending eastward from the mountains. Most of the High Plains country away from these two rivers is in large farms, averaging over a thousand acres, producing wheat and beef cattle.

The mountains have many small irrigated areas and one of considerable size — the San Luis Valley. The higher elevations are punctuated here and there by lumber camps, mining villages, and summer and winter resorts, but large areas are all but uninhabited. San Juan County is so high that it has no farms — a distinction it shares with Manhattan and Los Alamos! The highest county seat is Leadville, which at 10,152 feet is nearly a mile higher than Denver.

The Colorado Plateau has much the same sort of settlement as the Rockies, except that toward the western border the Colorado Valley is considerably wider and lower than the mountain valleys and is famous for its peaches and other fruit.

One of the state's distinctive crops is sugar beets, in which it ranks second in production after California. The main producing area is in the South Platte Valley, and the large yield around Greeley helps to account for Weld County's high position — tenth nationally in 1958 — in the value of farm

Colorado ranks second nationally in sugar beets—a major crop in the irrigated areas.



products.

Total farm production in Colorado in 1958 amounted to $589 million, which was 1.7 per cent of the national total of nearly $35 billion. Since Colorado had only 0.85 per cent of the nation's 4.8 million farms four years earlier — the last year of a complete agricultural census, it appears that Colorado's farmers manage considerably better than the national average. In 1954, the average value of a Colorado farm was in fact $37,513 as compared to a national figure of $20,405.

These Colorado farmers limit themselves to 38 million of the state's 66 million acres, and divide up this area between 11 million acres of crop land and 27 million acres of pasture. More than 2 million acres are irrigated, only California, Texas, and Idaho having a larger figure.

Wheat and hay rank first and second among the state's crops in both acreage and value. Since wheat is usually not irrigated, it is dependent on rainfall and fluctuates rather widely in yield. The bumper crop of 70 million bushels produced in 1958 was nearly double the 1947-56 average of 39 million bushels; it brought in $112 million, the first time in Colorado history a single crop had exceeded $100 million.

Other crops yielding $10 million or more in 1958 were sugar beets (28.5 million), corn ($27.8 million), potatoes ($12.6 million) and sorghums ($11 million). Individually less valuable but collectively amounting to a very tidy sum are barley, oats, dry beans, broom corn and the various temperate fruits, of which peaches, apples, pears, and cherries were most important. The total value of all crops in 1958 was $227 million.

The big gap between the total income of Colorado farmers and the crop income just referred to is of course accounted for by their livestock income, which came to $341 million in 1958. Numbers of farm animals on Colorado ranches and farms in 1959 were 2.2 million cattle (including 147,000 milk cows), 1.8 million sheep, 221,000 hogs, and — sadly dwindled — 67,000 horses and mules. Back in 1954, dairy products marketed brought $25 million, poultry products accounted for $11 million, and the really big money — $214 million — came from live animals and meat. Much of this moved to or through the Denver stockyards, which received a million cattle, 1.6 million sheep, and 600,000 pigs that year.

The prosperity of Colorado farmers is reflected in their equipment and houses. They bettered the national average in 1954 in tractors, electricity, running water, and telephones, and lagged only in television. Perhaps by now they are as much addicted to "Maverick" and their children to "Huckleberry Hound" as the rest of us.

Mines and Wells

Colorado's reputation as a treasure house of mineral wealth is amply justified. Through the years, emphasis has shifted from the gold and silver of the early days to the less glamorous but more re-

munerative base metals and coal, and more recently to oil, natural gas, and uranium. Just over the horizon is another resource that may completely revolutionize the economy of the state — oil shale.

Mineral production in Colorado first surpassed $100 million in value in 1947 and has mounted to over $300 million from 1956 on. Oil and gas accounted for 49 per cent of the value in 1958, while metals contributed 33 per cent, non-metallic minerals produced 13 per cent, and coal made up the remaining 5 per cent.

Colorado now ranks ninth among the states in crude oil production. It has forged rapidly ahead since major oil companies first became seriously interested in the area during the early years of World War II. By 1946 production had passed 10 million barrels and recent output has exceeded 50 million barrels, except for the recession year of 1958. Total reserves are estimated at 700 million barrels, including primary and secondary recovery.

The major producing area is the Rangely field in Rio Blanco County near the northwestern corner; its output is 71,650 barrels a day. Most of the rest comes from three other fields: Adena with 15,100 barrels, Wilson Creek with 6.900 and Little Beaver with 6,251 barrels a day. The Wilson Creek field is in Rio Blanco County and the Adena and Little Beaver fields are in the Fort Morgan-Brush area of northeastern Colorado.

Natural gas is another major source of energy for the state — it ranks eighth nationally in reserves and ninth in production. In the fiscal year 1957-58, production reached 134 billion cubic feet. The bulk of it comes from the western half of the state, where much of the activity centers in the San Juan Basin, in the famous Four Corners area where Utah, Colorado, Arizona and New Mexico meet. Gas from this area is mostly piped by the Pacific Northwest Pipeline Corporation to Oregon and Washington, but some of it reaches eastern Colorado by way of a connecting pipeline across southern Wyoming. The main supply to the eastern Colorado consuming areas is furnished by the Colorado Interstate Gas Company from fields in the Texas Panhandle and western Kansas.

Another form of hydrocarbon found in Colorado is the unique mineral Gilsonite, the only solid hydrocarbon currently being refined commercially in the United States. The deposit straddles the Colorado-Utah line and the veins now being exploited are actually in Utah, but the refinery is in

Ample irrigation water from the mountains supports lush pastures near Boulder. Cattle like these provide a major portion of Colorado's $200 million annual income from livestock. Both cattle and sheep currently outnumber people in the state, but not for long.

Gilsonite, a solid hydrocarbon that looks like black glass but is neither heavy nor very hard, is powdered at the Utah mine site and piped as a slurry to American Gilsonite's plant near Grand Junction. After drying, it is added to this stockpile to await refining.

Colorado. Gilsonite is a light-weight black solid, massive and glass-like in structure, that occurs in vertical veins up to 22 feet wide and 2,000 feet deep in sedimentary rocks. Mining is by means of high-pressure jets of water, and the ore is shipped as a slurry through a 72-mile pipeline to the refinery at Fruita, near Grand Junction. Present reserves are estimated at 16 million tons, which is equivalent to more than 100 million barrels of crude oil.

Future Oil Capital?

Waiting in the wings for future development is Colorado's most remarkable energy resource of all — 1.5 trillion barrels of oil in the oil shale of the Green River formation. Since petroleum reserves for the whole country were estimated in 1958 at a little over 30 billion barrels, the stragetic significance of these deposits is enormous. The Mahogany Ledge, the richest seam, is estimated to have an average oil content of 30 gallons per ton and is 5 to 30 feet thick; it outcrops in cliffs bordering the Colorado River for a dozen miles about 50 miles northeast of Grand Junction. Between 65 and 70 billion barrels are believed to be recoverable from this seam alone.

Experimental work on the deposits began as far back as 1945 with a U.S. Bureau of Mines pilot plant at Rifle. More recently, the Union Oil Company of California acquired 50,000 acres of land in the area and spent upwards of $20 million to construct and operate a demonstration plant. When Union Oil suspended operations in 1958, it was satisfied that products obtained from the shale were indistinguishable from those obtained from ordinary crude oil.

In order to justify the very large investment that would be involved in putting in large-scale production facilities and a pipeline to the West Coast —the logical market, the cost gap between oil shale and crude oil operations will have to be narrowed still further. Several factors are already operating to close this gap. The cost of finding new oil reserves in this country is gradually rising and technological developments are gradually reducing the cost of processing oil shale. A major change in the international oil scene, such as the Suez crisis, could easily be the trigger that would set off an economic revolution in Colorado.

Meanwhile, a remarkable plan for a city of 350,000 people by 1975 has been prepared by a group of graduate students in city and regional planning at Cornell University. The city of "Grand Valley" would be located on a large alluvial fan bordering

the south bank of the Colorado, while across the river would grow up the mines and processing plants, mostly in canyons cut deep into the plateau by tributaries of the Colorado.

Other groups interested in the potentialities of oil shale are the Dow Chemical Company, which has acquired 7,600 acres of shale land, and the Denver Research Institute, which has been engaged by the Oil Shale Corporation and Sinclair Research Laboratories, Inc., to investigate a Swedish process involving pre-heated ceramic pellets as a means of heating the shale.

Temporarily eclipsed by more glamorous fuels, coal has a long and illustrious history in Colorado. Reserves of bituminous coal total nearly 100 billion tons and are greater than for any other state west of the Mississippi River, since the larger total reserves for several other western states include considerable amounts of sub-bituminous coal and lignite. Coal production reached its peak in 1917 at over 12 million tons and cumulative production is the greatest for any state west of the Mississippi, though Utah currently has a larger output.

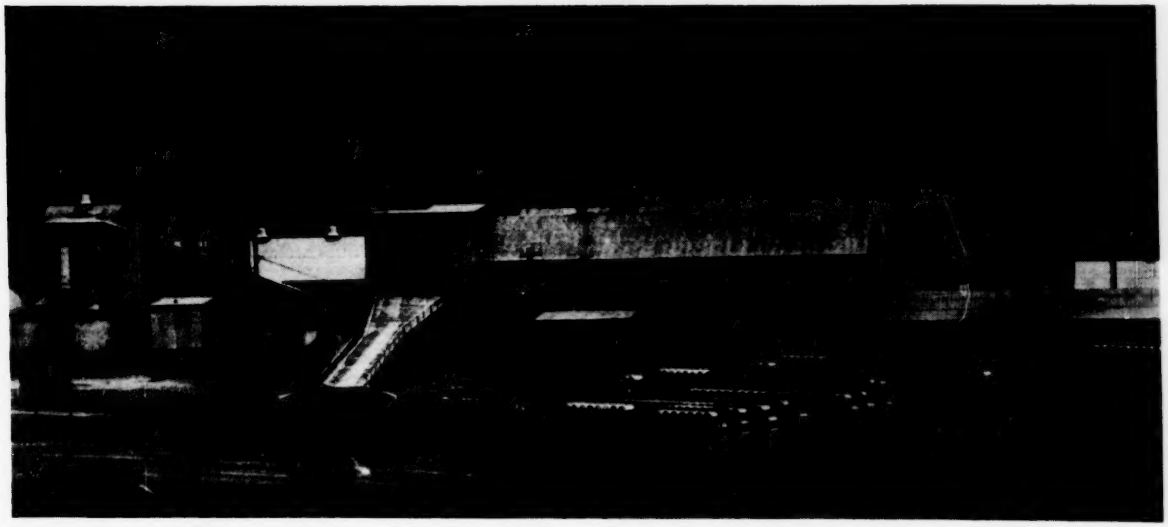
Since 1955 Colorado production has been between three and four million tons annually. About one-quarter of the state is underlain by coal fields, which occur in 38 different sections. Traditionally the most important has been the Trinidad-Walsenburg area at the foot of the Rockies in southeastern Colorado. Much of the coal produced in this area is of coking quality and is used by the Colorado Fuel and Iron Company at Pueblo in its blast furnaces.

As in other states, the loss of the railroad market to diesel fuel and the domestic heating market to natural gas and fuel oil has accounted for most of the decline. The coal industry is far from dead, however, as is witnessed by the development by the Public Service Company of Colorado's Cameo Station at the mouth of a coal mine. This station, 16 miles east of Grand Junction, has an initial generating capacity of 66,000 kilowatts and an ultimate potential of 300,000 kilowatts.

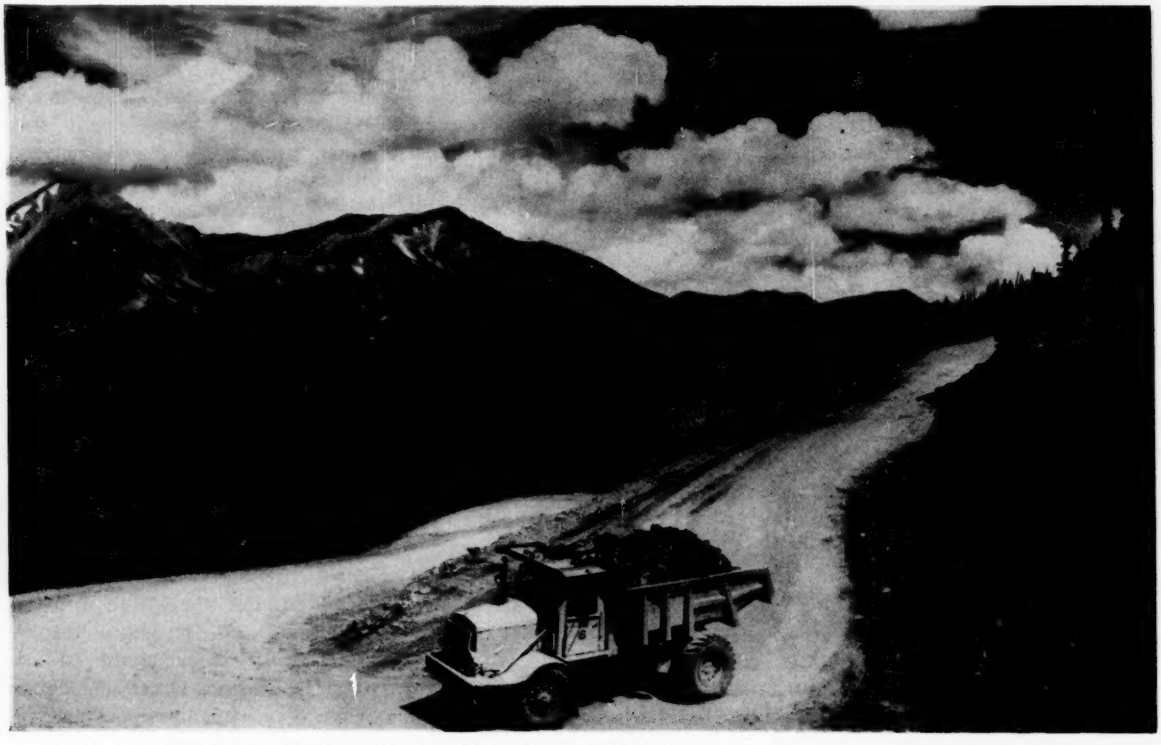
Metals

Uranium has now come of age in Colorado and elsewhere in the West and left behind the hectic, adventurous days when prospectors armed with Geiger counters swarmed over remote desert canyons and snow-covered mountain sides on jeeps and muleback. Grand Junction retains its position as the capital of the industry, even though the main centers of mining and concentrating the ore are outside the state, chiefly because the Atomic Energy Commission's Operations Office and Union Carbide Nuclear Company's headquarters and research laboratory are located there.

Every day truckloads of uranium concentrate (U_3O_8) from most of the uranium mills scattered from South Dakota and Washington to Arizona arrive in Grand Junction for sampling at the A.



Drums of uranium concentrate are brought in from all over the Rocky Mountain area to the Atomic Energy Commission Operations Office in Grand Junction, where they are sampled to provide the basis of Government payments to producers. One carload of these drums, worth a million dollars, is shipped east for refining every day.



Much of Colorado's $350 million mineral output is of such workaday materials as this load of dolomite, on its way down from the Monarch quarry to Pueblo for use in steel making.

E.C. operations office. Payments by the Government to the producing companies are made on the basis of the sampling. The concentrate is then loaded in drums onto a freight car for shipment to the Monsanto refinery in East St. Louis, Illinois. Each of these freight cars, which leave on the average of one a day, is worth a million dollars!

A.E.C. purchases of uranium concentrate totaled $280 million in 1959 — up from $2 million in 1949 and $24 million in 1953. Uranium ore produced in 1959 amounted to 6.1 million tons which averaged 0.26 per cent uranium oxide, in other words, the equivalent of about 16,000 tons of uranium concentrate. Ore reserves in the country were estimated in 1959 as just under 90 million tons.

In addition to the Grand Junction installations, there are five uranium processing plants in the state. Union Carbide Nuclear has mills at Rifle and Uravan, both with rated capacity of 1,000 tons of ore a day, Vanadium Corporation of America has a 750-ton plant at Durango, Trace Elements Company has a 300-ton plant as Maybell, and Gunnison Mining Company has a 200-ton plant at Gunnison.

Among the old standbys of the state's mineral production are molybdenum, vanadium, and zinc; the yield to the producers in 1957 was $50 million for molybdenum, $40 million for vanadium, and 12 million for zinc. The Climax Molybdenum Corporation is responsible both for most of the nation's output of that important alloying metal and for the highest community of any size in the country — Climax, which is at an elevation of 11,450 feet.

Lead, gold, copper, tungsten, and silver among the metals and sand and gravel, fluorspar, limestone, other building stones, and clays among the non-metals all exceeded a million dollars in value of production in 1957.

Transportation

Colorado's magnificent terrain presents a challenge that has been met in stunning fashion by the railroads, trucking companies, airlines, and the Colorado Department of Highways. Witness the Denver and Rio Grande Western Railroad's Moffat Tunnel, the 21 mountain passes kept open throughout the winter — including 11,314-foot Berthoud Pass, and the frequent air service offered to small Western Colorado towns.

Eastern Colorado presents just about optimum conditions for land and air transport, and is honeycombed with paved highways, rail lines on which passenger runs are *scheduled* at better than 70 miles an hour, and airways converging on Denver's Stapleton Airfield, which ranks fifteenth in traffic in the nation.

Seven railroads serve the state. The Denver and Rio Grande Western, locally known as the Righ-o Grande, has most of its mileage within the state and its headquarters at Denver. Its role within Colorado might be compared with that of the New York Central in New York. It has the western two-thirds of the state pretty much to itself, and is very popular with railroad "buffs", each of whom has his own favorite branch line or particularly scenic stretch of track. Most of the old narrow-gauge lines leading to remote mining or lumbering areas are a thing of the past, but a number have been converted to standard gauge and are a regular part of the system.

The Colorado and Southern, a subsidiary of the Chicago, Burlington, and Quincy, has the only north-south line completely across the state, from Cheyenne, Wyoming, to Trinidad. The Burlington also has a line leading eastward from Denver toward Omaha.

The Union Pacific has two branches off its main transcontinental line leading to Denver; one follows the South Platte River in from the northeast and the other drops down from Cheyenne. It also has a line eastward from Denver toward Kansas City.

The main line of the Santa Fe crosses southeastern Colorado from Holly to Trinidad. A branch from La Junta serves Pueblo and Denver.

The other main lines are the Chicago, Rock Island, and Pacific, eastward from Denver and Colorado Springs toward Omaha and Kansas City, and the Missouri Pacific, eastward from Pueblo to Kansas City.

Highways

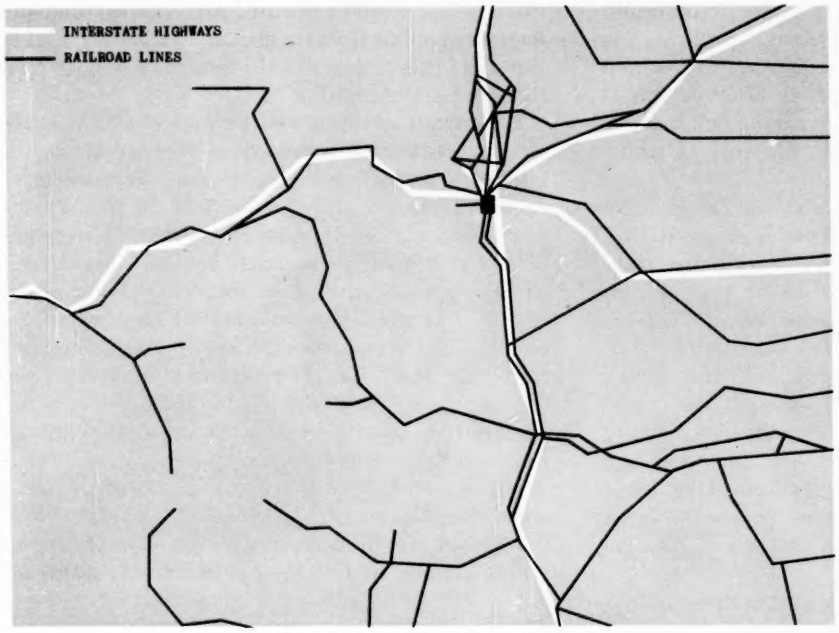
The pattern of new interstate highways shows Route 25 running north-south just east of the Rockies and crossed at Denver by the east-west transcontinental, Route 70. A branch line, Route 80S, follows the line of the South Platte to connect with Route 80 proper, which just misses Colorado to the north.

Meanwhile, the state has an excellent system of Federal and State highways, with only a few relatively unimportant stretches remaining to be paved. A four-lane road leads northward from Pueblo to Colorado Springs and Denver and out from Denver to Golden, almost to Greeley, and to Boulder; this last is a toll road, the farthest west turnpike in the country.

Four main routes cross the mountains. U.S. 160 crosses southern Colorado from Walsenburg to the Utah line and gives access to the Indian country around Durango and Cortez. U.S. 50 follows the Arkansas up from Pueblo, crosses the Continental Divide at Monarch Pass, only two feet lower than Berthoud Pass, and then follows the Gunnison River to Grand Junction. U.S. 24 connects Colorado Springs with Leadville and thereafter follows the Eagle and Colorado rivers to Grand Junction. The northernmost is U.S. 40, the main Denver-Salt Lake City highway, which goes through Berthoud Pass and Steamboat Springs.

With its wide open spaces, car ownership is even more essential than in the country generally, and the 641,000 automobiles registered in 1958 represented 1.2 per cent of the national total, although

The highway bridge over the Royal Gorge is possibly the world's highest overpass. The Rio Grande's transcontinental trains stop to give passengers a good look. The most scenic of America's transcontinental runs is scheduled so that passengers will see the most spectacular country in the daytime.



Colorado's new interstate highway system centers on Denver but an excellent system of federal highways — not shown — covers all parts of the state. Railroads focus on Denver, Pueblo, Trinidad and Grand Junction.

the population is only 0.95 per cent. Truck and bus registrations numbered 180,000, or 1.67 per cent of the national registration — indicating a still greater relative use. Many well-known interstate and transcontinental trucking lines span the state, giving through service to distant points. Some parts of the state rely exclusively on trucks and buses for external connections.

Airlines

Seven commercial airlines serve the state — Braniff, Central, Continental, Frontier, Transworld, United and Western. Both Continental and Frontier have their headquarters in Denver.

Braniff has its northwestern terminal at Denver and also serves Colorado Springs. Service is primarily to Kansas City and to Texas and Oklahoma points. Central Airlines, a feeder line with its headquarters in Fort Worth, connects Denver, Colorado Springs and Lamar with points in Texas, Oklahoma, and Kansas.

Continental Airlines has outgrown its original Denver-El Paso and Denver-Kansas City routes, and now serves eastward to Chicago and westward to Los Angeles. It operates out of Pueblo, Colorado Springs, and La Junta as well as Denver.

Frontier Airlines, another feeder line, rivals the Rio Grande Railroad in the service it offers western Colorado. From Denver, Colorado Springs, and Pueblo, it has two routes sweeping westward to Grand Junction and Salt Lake City. The shorter route serves Gunnison and Montrose-Delta, while the longer route has stops at Alamosa, Monte Vista, Durango, Farmington (New Mexico), and Cortez. Frontier also has two routes northeastward out of Denver, one of which also serves Sterling.

Denver is a stop on many of Transworld Airlines' transcontinental flights. It also figures importantly in United Airlines' schedules, and even more importantly in United's business operations, since reservations over the entire system are now centralized in Denver. Service is also maintained to Grand Junction on the way to Las Vegas and Los Angeles.

Western Airlines has flights westward from Denver to major coastal points and also northward to Wyoming and Montana and eastward to Minneapolis.

Apart from commercial flights, private and company planes are constantly criss-crossing the state, landing or taking off from one or another of the 80 civil airports now in operation.

Colorado, incidentally, benefits enormously from air travel and will benefit still more when jet service is more widely available. An Eastern or West Coast manufacturer can reach his Colorado branch between meals, and will make little headway in the pile of papers he brought along to go through on the plane.

Electric Power

Electric power distribution in Colorado is dominated by the Public Service Company of Colorado and other private companies, although there are 29 municipal systems — the largest being in Colorado Springs — and 24 rural electric cooperatives. The Public Service Company dominates power generation to an even greater extent, since it supplies wholesale power to the Colorado Central Power Company, the third largest private company.

Total generating capacity installed in 1957 was 1,187,000 kilowatts, of which 939,000 was in thermal plants and 248,000 in hydroelectric plants, most of it in plants operated by the Bureau of Reclamation. By ownership, 740,000 kilowatts of the total generating capacity was operated by privately owned utility companies, 152,000 by municipal systems, 198,000 by other publicly owned systems, and 97,000 by industrial plants.

The Public Service Company has the only three plants with over 100,000 kilowatts, all serving the Denver area. Its total installed capacity by the end of 1959 was 829,000 kilowatts, and it has scheduled new capacity of 44,000 kilowatts in 1960, 150,000 more in 1962, and 150,000 more in 1964, a total of 344,000. At the end of 1959 it had 60,000 kilowatts immediately available to new industry.

The area outside Denver served by the Public Service Company extends westward to Leadville and from there southward to Alamosa and farther westward to Grand Junction. An isolated area around Sterling in the northeastern corner is also served.

The Colorado Central Power Company serves 33,000 customers in four different suburban areas around Denver; as noted, it gets its power from the Public Service Company.

The second largest privately owned utility is the Southern Colorado Power Company, with headquarters at Pueblo and 81,000 kilowatts of capacity at the end of 1958. It serves the Arkansas Valley up to Canon City and down to La Junta.

The Western Colorado Power Company, a subsidiary of Utah Power and Light Company, has its headquarters in Montrose and serves a 100-mile belt extending from Durango on the south to Paonia on the north. Its installed capacity at the end of 1958 was 31,000 kilowatts.

Other private companies are limited to small service areas, the largest being the Home Light and Power Company of Greeley, which purchases its power, and serves Greeley and several neighboring towns.

Municipal systems are found in a number of important communities besides Colorado Springs, such as Fort Collins, Fort Morgan, Longmont, Loveland, and Trinidad. Rural electric cooperatives serve many of the farming areas, especially in the northern part of the state, where they draw their power largely from the Bureau of Reclamation's plants operated in connection with irrigation dams.

Except for the Western Colorado Power network in the southwest, all facilities are interconnected to form a power pool, with connections outside the state.

Natural Gas

The Public Service Company is also the largest distributor of natural gas in the state, serving most of the cities of its electric service area in eastern Colorado and also the Grand Junction area. It has no transmission lines of its own, although its subsidiary, the Colorado-Wyoming Gas Company, has a short line. Most of its gas is supplied by the Colorado Interstate Gas Company in the east and from the Pacific Northwest Pipeline Corporation in the west. Its sales in 1958 amounted to 76 billion cubic feet, and it used an additional 29 billion to generate electricity.

Of the other distributing companies, the largest are the Pueblo Gas and Fuel Company, with sales of 9 billion cubic feet, and the Plateau Natural Gas Company, which serves an area along the Arkansas River extending into Kansas and which sold 9.5 billion cubic feet in 1958.

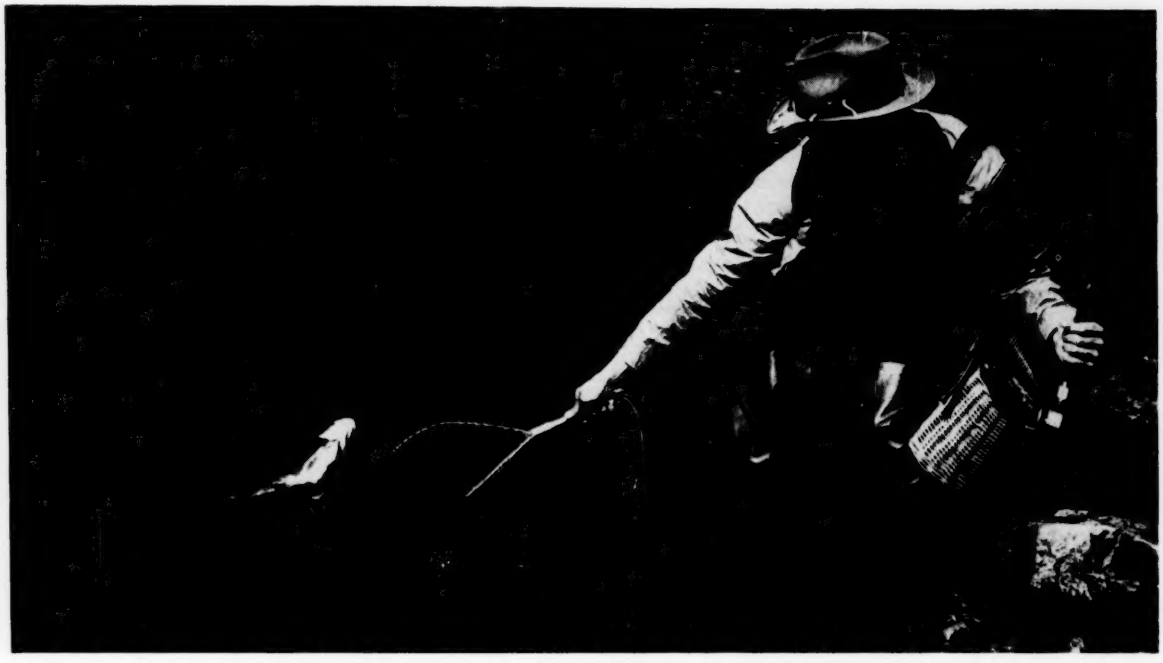
Smaller privately owned distributing companies included the Greeley Gas Company, which serves Greeley, Canon City and Craig; the Citizens Utilities Company serving La Junta; and the Southern Union Gas Company, whose New Mexico service area extends into the state at Durango.

The Colorado Springs municipal system has sales of 10.6 billion cubic feet. Trinidad and Fort Morgan also have municipal systems.

The major supplier of gas to the distributing companies is the Colorado Interstate Gas Company, with its headquarters in Colorado Springs.

Water

Colorado's impressive water resources are the object of envy from several surrounding states. No less than 99 million acre-feet are estimated to fall as rain or snow on the state, 69 per cent of it west of the Continental Divide. Although the bulk of



Well-stocked lakes and streams are in easy reach from nearly all of Colorado's cities and towns. This man may be on his lunch hour.

this returns to the atmosphere or seeps into the ground, runoff is estimated at 17 million acre-feet, which is available for use within the state or beyond its border from one or another of the six major rivers that flow out of Colorado.

The master stream is the Colorado, which collects all the drainage of the Continental Divide from Wyoming southward into southern New Mexico. Although part of the Colorado drainage leaves the state by the Yampa, White, and San Juan rivers, to join the main stream in Utah, the bulk of the flow is united in the main stream at Grand Junction.

Due to the circumstance that the South Platte and Arkansas rivers, flowing eastward from the divide, encounter the most suitable sites for large-scale irrigation, but have less water than the Colorado, there have been a number of diversion schemes to supplement the flow of the eastern rivers.

The most spectacular of these are two diversions to add to the Denver water supply, one of which follows the Moffat railroad tunnel, and the Colorado-Big Thompson Project, completed in 1954 to provide irrigation water for 615,000 acres around Greeley.

The Blue River Diversion Project is part of a comprehensive plan to provide Denver with enough water for a city of 1.9 million by 1965. The Harold D. Roberts Tunnel under the mountains is already under construction as part of this project.

In 1950, estimated water use in the state was 8,887 million gallons a day, of which no less than 8,597 million gallons were for irrigation; the remainder was for municipalities (170 million), industries (70 million) and rural users (50 million). The amounts for cities and industries have undoubtedly increased very greatly since that time, but the great preponderance of irrigation must remain.

This has great significance for future industrial development in the state, as the recent experience of Arizona proves. Conversion of irrigated land to most types of industrial or to residential use results in sizeable savings in water use. Purchase of agricultural water rights is already being advocated as the solution to water supply problems of small municipalities.

Recreation

Colorado does lack one feature that might be pointed out by carping critics as necessary to a fully equipped recreational paradise. Like Switzerland, it has no seacoast.

But it more than compensates for this in the tre-

Central City, near Denver, was one of the greatest of the early mining towns. Parts of it have been carefully restored and the town is now a major attraction, especially during its world-famous opera season, when it becomes an American Salzburg.

mendous expanse and variety of its mountain landscape. For those in a hurry, there are panoramas of whole ranges of 14,000-foot peaks and close-ups of towering canyon walls seen from the Rio Grande's vista-domes. For those who like to see things from the top but want to do it the easy way, there are roads to the top of Mount Evans near Denver and Pikes Peak near Colorado Springs and also a cog railway up Pikes Peak.

For the would-be Hillary or Tenzing, there are hundreds of square miles of trackless mountain country. For the growing army of skiers, there are accommodations ranging from such fully equipped and internationally known centers as Aspen and Steamboat Springs to remote slopes where a single set of ski tracks runs for miles.

Rocky Mountain National Park generally leads the main tourist areas in number of visitors, but a surprising number find their way far from the cities to such attractions as the prehistoric villages of Mesa Verde. The Black Canyon of the Gunnison, a magnificent granite gorge with almost vertical cliffs, is increasingly popular.

Hunters find game long since vanished from most of the country. No less than 584 bears were bagged in 1958, along with 2,262 antelope and 8,598 elk, not to mention over 80,000 deer and hundreds of thousands of game birds. Fishermen can choose from some 13,000 miles of trout streams.

To many, Colorado is a synonym for golf. The combination of clear, brisk days and magnificent scenery with superior course layouts has made Broadmoor and other famous courses hard to equal anywhere.

For these who prefer to watch others, college football, basketball and hockey are major attractions and Denver has AAA baseball with both major-league baseball and pro football in prospect. The Centennial Turf Club's 10-year-old race track at Littleton, outside of Denver, had a July-August season in 1959, with a minimum purse of $1,100.

The more serious-minded also have much to divert them. In the musical field, there are 15 regular-season and seven summer concerts by the Denver Symphony Orchestra, which has 70 players conducted by Saul Caston. The summer concerts are given in one of the most spectacular settings on earth — the Red Rocks Amphitheater.

Central City, an authentic ghost town faithfully revived in all its Victorian glory, plays host every summer to music lovers from all over the world for its star-studded opera season. It now has a rival in Aspen, which has a distinguished concert season and a music school developed on the pattern of Tanglewood in the Berkshires.

Denver also boasts a Businessmen's Orchestra of 80 players that gives four concerts annually, and a 500-member Civic Chorus puts on major choral works.

Denver has a distinguished art museum with important works in its permanent collection and three major exhibitions a year. The Colorado Springs Fine Arts Center is widely known for both its architecture and its activities. Other cities, notably the college communities, have a wide range of cultural activities throughout the year.

Denver is a major stop on the Broadway road show circuit and also has the oldest active summer stock company in America, producing ten plays a season with prominent actors in leading roles. Little theater groups are active all over the state.

State Government

Colorado has been blessed through the years by good state and local government. It quickly outgrew the violence and disorder of the early mining days, and thereafter has never been dominated by any single economic interest or political group.

The state operates on the pay-as-you-go basis, and has had no bonded indebtedness for 40 years. Local governments, of course, have debts outstanding, but the per capita outstanding debt of state and local governments in 1957 was only $279.96 as compared with a national average of $299.75

In 1958, state tax collections amounted to $165 million, made up of $43.6 million from sales taxes, $33.7 million from motor fuels, $4.5 million from alcoholic beverages, $14.4 million from operators' and motor vehicle licenses, $24.5 million from individual incomes, $11.0 million from corporation net income, and $12.4 million from property taxes.

The state income tax levied on individual incomes starts at 3 per cent in the $750-$1,000 bracket and is graduated to 9 per cent for income over $10,000. Since Federal income taxes are fully deductible, individual bills are comparable to those in states with much lower rates.

The corporation net income tax rate is 5 per cent, with no excess profits tax. The state withholding is computed at 6 per cent of the Federal withholding tax.

The base rate for the unemployment compensation tax is 2.7 per cent on wages up to $3,000, but the average rate paid by Colorado employers is as low as 0.6 per cent — far below the national average of 1.3 per cent. This speaks extremely well for the stability of Colorado employees.

Labor-management relations are appreciably better than the national average, as measured by time lost through strikes. In the period 1954-1958, the average time lost was 0.19 per cent for Colorado and 0.22 per cent for the country as a whole.

Non-agricultural workers who were union members in the state were 29 per cent of the total, as compared to 39 per cent nationally. The Colorado Labor Peace Act, modeled on Taft-Hartley, has governed labor relations for a decade. Among its provisions is one requiring prior approval of 75 per cent of the employees involved in a bargaining unit before a union shop agreement can be concluded.

Endorsements of Colorado labor by new and old employers are numerous and hearty. The Denver Research Institute study, "An Analysis of Colorado as a Location for the Aircraft and Missile Industry," for example, has quotations from Martin, Beech, Union Carbide, Kaman, Thompson-Ramo-Wooldridge, Sundstrand, and Hewlett-Packard on the ease of recruiting — and keeping — labor in Colorado, and on the high rate of productivity in their Colorado plants.

Research Groups

Research capabilities in Colorado are outstanding, due to the interplay of universities, government laboratories, private research organizations and the technical staffs of manufacturers in the state.

The University of Colorado has 16,000 students, mostly at Boulder, and the most extensive graduate program of the state's universities. Both Colorado State University at Fort Collins and the privately financed University of Denver have about 6,000 students.

The State maintains four other degree-granting colleges; Colorado School of Mines at Golden, which offers doctorates in geology and metallurgical and petroleum engineering; Colorado State College at Greeley, the chief center of teacher training; Adams State College at Alamosa; and Western State College of Colorado in Gunnison.

Other four-year colleges include the Air Force Academy and Colorado College in Colorado Springs and Regis College and Loretto Heights College, Catholic men's and women's schools, respectively, in Denver.

Eight junior colleges are well scattered around the state in Sterling, Denver, Lamar, La Junta, Pueblo, Trinidad, Durango, and Grand Junction.

University-associated research groups include Denver Research Institute (DRI), at the University of Denver with a staff of 215, and the Colorado

Not Assisi, but a corner of the University of Colorado campus at Boulder. Its student body of 16,000 is the largest between Missouri and Oklahoma on the east and California on the west.

Agricultural Experiment Station and Colorado State University Research Foundation (CSURF) at Fort Collins. Both DRI and CSURF have been undertaking contract research programs at the rate of $2 million annually.

The World Data Center for Solar Activities is to be located at the university in Boulder, where there are already a Numerical Analysis Center, an Engineering Experiment Station, and the High Altitude Observatory.

Specialized facilities include a cyclotron under construction in Boulder, the nuclear reactor in Fort Collins, and a Mach 4.5 wind tunnel at the Air Force Academy Aerodynamics Laboratory.

Some of the more important research firms or manufacturing firms engaged primarily in research include Colorado Research Corporation, Colorado Serum Company, Hallamore Electronics, Ohio Oil Company Research Center, and Petroleum Research Corporation, all in the Denver area, Kaman Aircraft in Colorado Springs, Ball Brothers Research Corporation in Boulder, and Beech Aircraft in Boulder and Longmont.

To these should be added the facilities and staffs of such major governmental installations as the Bureau of Standards Laboratory in Boulder and the Bureau of Reclamation and the U. S. Geological Survey in Denver and the Atomic Energy Commission's establishments at Grand Junction and Denver.

The scientific personnel of all these organizations and of the technical staffs of the manufacturing plants in the state have banded together into more than 40 local chapters of scientific societies. No one need go to seed in Colorado for lack of professional stimulus, more especially since the Denver Bibliographical Center for Research, the Denver Public Library and the various university libraries bring scientific work being done all over the world immediately to hand.

Cities

The cities of Colorado very early left the mining camp stage behind, but they are fortunate in not having advanced far into industrialization until recently. They have a clean, uncluttered look, and even Denver has very little of the problems besetting metropolitan areas in other parts of the country.

This is not to say that they are immature and lack metropolitan advantages. Denver has been a regional metropolis since 1890, when it passed 100,000 and became the 26th largest in the country,

The youthful President of the Grand Junction Chamber of Commerce, Herbert L. Brown, confers with Chamber Manager Dale J. Hollingsworth on their most recent release describing the center of an area larger than West Virginia.

Robert S. Brown, Manager of Industrial and Business Development at the Denver Chamber of Commerce, displays the hefty assemblage of current information available on the state's largest city.

and both Pueblo and Colorado Springs had a good start by 1900.

As the long-acknowledged center of the Mountain States, Denver has attracted many diverse interests, most notably a very large wholesale trade and many Federal administrative functions, in addition to the normal appurtenances of any large city. The state government adds both prestige and substantial employment, and there are several large Federal military installations near by.

It has representatives in its many office buildings of most of the large corporations in the country. It is an important insurance center, and has administrative offices for many oil companies. With all this, it is not surprising that the big gains in manufacturing employment have not greatly altered the varied structure of the city.

Robert S. Brown, Manager of Industrial and Business Development at the Denver Chamber of Commerce, expects that Denver's future industrial growth will continue as in recent years mainly in the lines where the value added by manufacture is relatively high.

The Denver Chamber is not content to let matters take their course in this regard. They have commissioned The Denver Research Institute to prepare a series of research studies on the suitability of Denver for various types of business. One of these, "Why Denver for Instrument Manufacturing," is now available, and others on research laboratories and electronics manufacturing are in process.

Pueblo is at the southern end of the main urbanized corridor just east of the mountains and like Denver is situated where one of the great east-flowing rivers leaves the mountains. Its domination by one large industry is more apparent than real because of the wide range of steel products put out by Colorado Fuel and Iron.

One of the industrial newcomers to the area is Triplex of America, which makes aluminum pistons, and there are a large air base and an ordnance depot. Industrial skills and semi-finished steel items are major assets for future development, as is the productive trade area.

Colorado Springs, long famous as a resort, has grown especially rapidly in recent years. In addition to winning the coveted Air Force Academy, it also has the headquarters of the North American Air Defense Command (NORAD) and a number of other important military installations.

Its great popularity as a resort and retirement home and the planned attractiveness of the community itself made it a natural for many of the incoming light industries, such as Aircraft Mechanics, Clifton Precision Products, Kaman Aircraft, and Shepard's Citation. It has also attracted a number of insurance companies.

Other important cities east of the mountains are Boulder, Greeley, and Fort Collins, all north of Denver. Boulder is mainly associated with the University of Colorado, but the turnpike to Denver, the new Bureau of Standards Laboratory, Beech Aircraft's plant, and projected I.B.M. plant spell an end to any academic isolation.

Greeley, the seat of fat and fertile Weld County, has announced the establishment of a locally financed meat packing plant which will be a model of neatness and spruce, modern lines when it opens in April. To be known as Greeley Capitol Pack, Inc., it will employ up to 300 and will be Greeley's largest industry.

Fort Collins is the site of Colorado State University, second largest in Colorado and home of the only atomic reactor in the state. The Forney industries are a major factor in its recent industrial growth.

One of the most alert communities in the state is Grand Junction, the largest of the Western Slope cities. It is the economic center of an area in western Colorado and eastern Utah that is larger than many Eastern states. The recent uranium boom has figured in its population spurt from 14,500 in 1950 to an estimated 23,000 in the city limits — 36,000, if the immediate environs are included.

Now that the uranium situation has stablized, the city is not content to wait on its haunches for another boom — probably in oil shale — to come along. Spear-heading community business leaders in their drive for continued economic growth are Herbert L. Brown and Dale J. Hollingsworth, president and manager, respectively, of the Grand Junction Chamber of Commerce.

Armed with a detailed study not merely of Grand Junction and the rest of Mesa County, but of 23 counties in Colorado and Utah, which was prepared at their behest by the University of Colorado's Bureau of Business Research, they have undertaken a comprehensive program of community development.

This program encompasses an aggressive program of community improvement, to accomplish some of the things there was not time to do in the years just passed, and a systematic search for new activities that might fit well with existing activities.

Proud as they are of the strong raw materials base of the area, local business leaders are equally interested in light manufacturing of the types currently being attracted to the eastern part of the state.

Almost at the other end of Colorado, at Sterling, is another example of the type of community action that is coming to typify the state. In this case, the major vehicle is the Sterling Industrial Promotion Fund, which works closely with the local chamber. The President of the Fund, Otto Unfug, is fully experienced in community leadership, having served on previous occasions as mayor and as president of the local chamber.

Sterling dominates the irrigated area bordering the lower course of the South Platte within the state and large stretches of High Plains country on either side. It thus benefits from two different types of agricultural production in its extensive trade area, which is larger than Massachusetts and has 70,000 people.

Since 1956, when the Fund was instituted, there has been steady progress preparing the community for industrial development. Municipal and county zoning programs are now well advanced, and an attractive 30-acre site owned by the Burlington Railroad is ear-marked for industry.

The following Colorado communities have chambers of commerce or industrial development foundations or both that are particularly active in the industrial development field:

Boulder	Fort Lupton	Longmont
Canon City	Fort Morgan	Loveland
Colorado Springs	Golden	Pueblo
Delta	Grand Junction	Salida
Denver	Greeley	Sterling
Englewood	La Junta	Trinidad
Florence	Lakewood	Walsenburg
Fort Collins		

Far from seeking out some large corporation, the Sterling group prefers to concentrate its interest in possible employers of 100 or less, recruited mainly from the immediate vicinity.

Local capital is available in suitable amounts for investment in small firms well adapted to the area. Existing industry includes a sizeable sugar beet processing plant, prepared feed plants, and a number of natural gasoline plants. The main assets of the area, however, are not its physical resources but its highly trainable labor supply and the strong spirit of community cooperation.

Industrial Development Groups

No question need go unanswered that has to do with details of public and private capabilities in the state. Between them, the industrial development authorities — state, local and private — have seen to that.

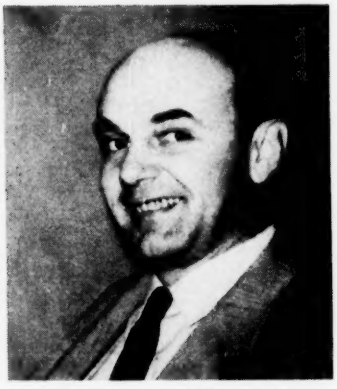
Within the state government, Governor McNichols has divided the responsibility for supplying information between Lewis R. Cobb, Executive Director of the Colorado Department of Development, and Dwight E. Neill, Director, Resources and Community Development Division, Colorado Department of Employment.

Lew Cobb's office has an extremely attractive assemblage of general information on the state and handles a multitude of requests for over-all statistics and items of interest to visitors to the state.

Dwight Neill's office, which was created in 1958 to provide state guidance for community development activities, is a great repository of detailed information on individual resources and communities, as well as on state policies and programs

Lewis R. Cobb, as Executive Director of the Colorado Department of Development, has a wealth of material to back up the boast, "Colorful Colorado", you see on license plates.

Dwight E. Neill is Director of the Resources and Community Development Division in the State Government's Department of Employment. He is well known over the state for his firm grasp of community development techniques and is equally well informed on what Colorado has to offer as an industrial location.



Appointed by Governor McNichols to head up his Advisory Council on Industrial Development, Mr. A. Asborno brings a banker's grasp for details and his own zest for public service to bear on the State's drive for continued balanced growth.

of interest to industry. "Colorado Industrial Newsletter" is the recently inaugurated monthly newsletter of this office.

The new agency, at Governor McNichols' suggestion, appointed an Advisory Council on Industrial Development. This group of no less than 155, is both evidence of the widespread interest in industrial development and assurance of the full cooperation that can be expected by companies considering Colorado locations.

The Chairman of the Council is Mr. A. Asborno, Vice President of the Central Bank and Trust Company of Denver, one of the most rapidly growing banks in the country. Mr. Asborno takes his responsibility to the council seriously because of his strong conviction that Colorado banks have great opportunities ahead of them in helping to broaden the employment base.

Two private concerns with very nearly statewide interests are also major factors in the industrial development scene — the Denver and Rio Grande Western Railroad and the Public Service Company of Colorado.

Earle L. Beardsley, Director of Industrial Development for the Rio Grande, knows the state practically mile by mile from Denver and Pueblo westward and can point out suitable sites for almost any kind of activity.

The Public Service Company has had a long history of working closely with communities in its service area to meet the needs of new and expanding industry. Guy W. Thomas, Vice President in charge of Commercial Operations, is well known over the state for his part in this work. In February he got the welcome assistance of M. Gordon Parker, newly appointed Director of Area Development.

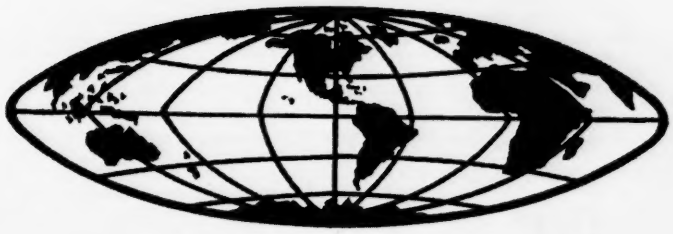
The recent new approach to industrial development in the state is well exemplified by the highly professional reports beginning to flow from the Denver Research Institute, where John G. Welles is Head of the Industrial Economic Division. Both the Denver Chamber of Commerce and the State's Resources and Community Development Division have commissioned studies from the Institute which are referred to elsewhere in this report.

The Bureau of Business Research is another major contributor, through its monthly "Colorado Business Review", its current series of "County Reports on Local Area Statistics" and the detailed community surveys it has prepared from time to time at the behest of chambers and other local groups.

Although the industrial development departments of railroads other than the Rio Grande are located outside the state, the Denver offices of these lines are well able to handle inquiries about their service in the state, and several of the lines own land eminently suited for plant sites. Both the Burlington and the Santa Fe, for example, have sizeable tracts near Denver.

The Colorado Report

This survey of industrial location factors in Colorado was conducted under the auspices of the Colorado Department of Development. Reprints are available from Lewis R. Cobb, Executive Director of the Department, State Capitol Building, Denver, Colorado.



MANUFACTURERS RECORD

THE INTERNATIONAL SUMMARY OF PLANT LOCATION NEWS ESTABLISHED 1882 VOLUME 129 NO. 3

By DONALD V. QUINN

MIAMI, FLA. — Plans to construct the first commercial liquid air separation plant in the state of Florida were announced today by R. E. Lenhard, president of Air Reduction Sales Company. The multi-million dollar installation will have a production capacity of 25 tons of high-purity liquid oxygen per day as well as liquid nitrogen and liquid argon. Groundbreaking for the new plant will take place in March, with completion scheduled for the summer of 1960. The new plant will be located on the main line of, and served by, the Atlantic Coast Line Railroad.

This facility, the newest in Airco's growing network of liquid air separation plans, will serve many of the industries in the Florida area. Nitrogen has an important use as a preservative in the processing and packaging of citrus fruit products. Both nitrogen and argon are used extensively as protective atmospheres in the production of electronic devices, while oxygen and argon are used in steel production, metal fabrication, ship-building, and aircraft and missile manufacturing.

TROMBAY, INDIA — Vitro International, a division of Vitro Corporation of America, has been awarded a contract by the Indian Government for the design of a $4 million high-level radiation laboratory at Trombay, India, it was announced today by Dr. Norman A. Spector, Vitro International President.

The laboratory, to be located at the Indian Atomic Energy Department nuclear center, will have more than 100,000 sq. ft. of floor space. It will be one of the largest integrated radioactive research facilities in the world.

The radioactive laboratory will include facilities for radiochemistry, radio-isotope and hot metallurgy operations. A special feature of the laboratory will be a number of hot cell areas for radiation experiments with plutonium and other highly toxic material. Special shielding windows will provide for safe observations of experiments.

DANVILLE, VA. — In a major corporate expansion necessitated by its growing production requirements, P. Lorillard Company today announced that it will construct a new $7 million facility designed to increase the company's tobacco processing and storage capacity by at least 50 per cent.

The new processing plant and storage warehouses will be built this spring in the Danville, Va., area on a 148-acre site. The facilities will, when fully operational, "house approximately 1,000 employees and $3 million of the most modern processing machinery," Lorillard board chairman and chief executive officer, Lewis Gruber stated.

Comprised of warehouses and a processing plant with a total of 14½ acres of floor space, the new warehouses are expected to be ready to meet the storage needs for the December, 1960, burley crop and the processing plant and production equipment will be in operation for the December, 1961, crop.

The new plant will be located three miles northeast of the Danville city limits on State Highway 58 and will have its own siding to the Southern Railroad.

ATLANTA, GA. — Plans by the Georgia Power Company to build a $75 million steam-electric generating plant on the Chattahoochee River, 12 miles north of Atlanta, were announced recently at the regular meeting of the company's board of directors.

The board voted to name the new plant after John J. McDonough, president of the Georgia Power Company and a veteran of 32 years service in the electric industry.

The following is a summary of major industrial plants in the United States, Canada, and foreign countries, reported to INDUSTRIAL DEVELOPMENT during the month of January, 1960 by industries and industrial development organizations.

Number of employees is indicated by the code: A(Under 25); B(25-100); C(100-250); D(250-1,000); and E(over 1,000).

ALABAMA

Anniston — D. S. Kennedy & Co.; Transmission towers and large antenna. In Oper. $300,000. (D)

Auburn — Dorn & Mitchell Laboratories, Inc.; Ira Dorn, Pres. Poultry vaccines, & research facilities. Livestock drugs. Est. date of Oper., April, 1960. $500,000. (B)

Columbiana — Narolastik, Inc.; W. C. Classe, Mgr. Narrow elastic tape. Est. date of Oper., May, 1960. 25,000 Sq. Ft. $200,000. (C)

Jacksonville — Opelika Manufacturing Co.; James Browning, Mgr. Special textile products for rental linen services & hospitals and institutions. Est. date of Oper., Spring, 1960. 200,000 Sq. Ft. (B)

Pisgah — Andover Togs, Inc.; Sidney B. Chen, Pres. Children's garments. Est. date of Constr., March, 1960. Est. date of Oper., Summer, 1960. (C)

Tryo — Lyn Coach & Truck Co.; James M. Friery, Pres. Truck bodies, etc. Est. date of Oper., Mid-1960. 7.2-acre site. (C)

ALASKA

No Plants Reported.

ARIZONA

Vail — Construction Components, Inc.; Ted Steele, Pres. Prefabricated homes. Est. date of Oper., April, 1960. 112-acre site. $500,000. 80,000 Sq. Ft. (C)

ARKANSAS

Bonneville — American Hard Rubber Co.; (Div. of Amerace Corp.) Bowling balls. Under Constr. $250,000.

Helena — Arkansas Power & Light Co.; R. E. Ritchie, Pres. Steam-electric generating plant. Under Constr. $19 million.

Lake Village — Carmi-Ainsbrooke Corp.; Men's and boy's underwear. Plans announced. $300,000. 50,000 Sq. Ft. (C)

Little Rock — Clarksville Shoe Corp., John F. Herbst, Pres. Children's quality foot wear. Est. date of Oper., Sept. 1960. (D)

CALIFORNIA

City of Industry — Todd Co.; (Div. of Burrough Corp.) 13201 Torch St. Business forms and checks. Under Constr. Est. date of Oper., Summer, 1960. 20-acre site.

Compton — Borden Chemical Co.; (Div. of Borden Co.) 27040 Wilmington Blvd. Adhesives, water base emulsions, industrial vinyl extrusions, consumer products such as glue, water hose and sprinklers. Est. date of Oper., Early, 1960. 18,500 Sq. Ft.

Long Beach — Life Shade Aluminum Awning Manufacturing Co.; E. 70th St. Aluminum trailer awnings. Plans announced. $1.25 million. 40,000 Sq. Ft. 4-acre site.

Los Angeles — Genisco, Inc.; Fred J. Nichols, Pres. 6320 W. Arizona. Electronic filters. In Oper. 16,000 Sq. Ft.

Pomona — Pomona Electronics Co., Inc.; Joseph J. Musarra, Pres. East Ninth St. Patch cords, instrumentation cables, test socket tube adapters. Under Constr. 10,000 Sq. Ft.

San Jose — R.A.D. Mfg. Co. Inc.; Ray E. West, Pres. 857 Savaker. Fiber-glass caskets. In Oper. $500,000.

Santa Fe Springs — Ace Tank & Heater Co.; B. McClannahan, Pres. 10847 So. Painter Ave. Water storage tanks, water heaters for commercial use. In Oper. 28,500 Sq. Ft.

Van Nuys — Radia Tronics; George Hewitt, Pres. 14801 Calif. St. Wave guides, micro-wave radar antennas, reflectors, drive mechanisms, electronic sheet metal, machine parts assembly. Est. date of Oper., March, 1960. 10,000 Sq. Ft.

Van Nuys — Rose Marie Reid; Jack Kessler, Pres. Stagg and Orin, Ave. Ladies' Swimwear. Under Constr. Est. date of Oper., Sept., 1960. $2 million. 12-acre site.

Vernon — Pioneer Aluminum, Inc.; J. Paul Kirk, Pres. 3800 E. 26th St. Aluminum aircraft extrusions, stainless steel in all forms, aluminum rod, bar, wire, flat sheet and plate, aluminum tooling plate, and sheet metal fasteners. Plans announced. $1 million. 170,000 Sq. Ft. 7-acre site.

COLORADO

Denver — Gamble-Skogmo, Inc.; E. E. Carr, Assist. Reg. Mgr. Warehouse and distribution center. In Oper. $1 million. 142,000 Sq. Ft. (C)

Denver — Imperial Transfer Company; Leon Goldfogel, & Lon Waldbaum, Co-owners. Wholesale groceries. In Oper. $250,000. 40,000 Sq. Ft.

CONNECTICUT

Hartford — Fuller Brush Co.; Alfred C. Fuller, Ch. of the Bd. Long Hill St. Clothesbrushes, handbrushes, wallbrushes and mops, also cosmetics and chemicals. In Oper. $6.5 million. 360,000 Sq. Ft. 84-acre site.

Ledyard — Dow Chemical Co.; Styrene-Butadiene latexes. Under Constr. $1 million.

Newington — Fafnir Bearing Co.; Ball bearings. Under Constr. $800,000.

DELAWARE

No Plants Reported.

DISTRICT OF COLUMBIA

No Plants Reported.

FLORIDA

Bayshore — Pellum Roofing Co.; J. H. Pellum, Owner. Concrete roofing tile and other concrete specialty items. In Oper. (B)

DeLand — Cabinets, Inc.; Wm. Shapiro, Offl. Municipal Airport. Kitchen cabinets. In Oper. (B)

Hialeah — Tucker Aluminum Products, Inc.; Thomas J. Metzgar, Pres. Windows and doors. Plans announced. (D)

Jacksonville — Kaiser Gypsum Co.; Claude E. Harper, V. Pres. & Gen. Mgr. Gypsum products. Plans announced. $ Multi-million.

Jacksonville — National Kraft Container Corp.; Samuel Kipnis, Pres. Corrugated shipping containers. Est. date of Oper., March, 1960. $250,000. 40,000 Sq. Ft. (C)

Lake Butler — Norman H. Stephenson; N. H. Stephenson, Offl. Men's and Boy's slacks. Est. date of Oper., early, 1960. (B)

Lake City — Kent Mfg. Co.; John W. Harrell, Pres. Municipal Airport. Wood furniture. In Oper. (B)

Miami — Seven-Up Bottling Co. of Miami, Inc.; S. J. Tobin, Pres. Bottled soft drinks. Plans announced. $400,000. 30,000 Sq. Ft.

New Port Richey — Marcellus Mfg. Co.; R. J. Marcellus, Pres. Gulf Drive, S. Automatic screw machines products, precision machine tooling. In Oper. (B)

North Miami — Anodyne, Inc.; Eugene T. Turney, Jr., Bd. Chmn. & Pres. 1400 N. E. 125th Street. Anodized etched, pressure-sensitive, aluminum foil name plates and pressure-sensitive cloth markers and safety signs. Under Constr. Est. date of Oper., June, 1960. $750,000. 25,500 Sq. Ft. (C)

Ocala — Universal Sewer Pipe Corp.; (Div. of U. S. Concrete Pipe Co.) W. R. McGarry, Mgr. Vitrified clay pipe and products. Est. date of Oper., Jan., 1961. 2.5 million. (B)

Orlando — Jitco (John I. Thompson Co.); Norman D. Marden, V. Pres. & Dir. Design, development and research. Est. date of Oper., 1960. (D)

Tallahassee — Rose Printing Company; Charles Rosenberg, Pres. Printing. Est. date of Oper., May, 1960. $360,000.

Tampa — Air Reduction Sales Company; (Div. of Air Reduction Co., Inc.) Liquid oxygen, nitrogen, and argon. Under Constr. Est. date of Oper., summer, 1960. $ Multi-million.

GEORGIA

Atlanta — Georgia Power Company; John J. McDonough, Pres. Steam-electric generating plant. Plans announced. $76 million.

Macon — Macon Telegraph and News; Printing plant. Under Constr. Est. date of Oper., End, 1960. $1.25 million. 40,000 Sq. Ft.

HAWAII

No Plants Reported.

THE TOP TEN

On the basis of the number of significant new plants reported to INDUSTRIAL DEVELOPMENT during the past six months, here are the leading states in industrial expansion and the number of plants reported for each:

1.	Pennsylvania	72
2.	California	65
3.	Massachusetts	64
4.	Florida	61
5.	Mississippi	54
6.	North Carolina	47
7.	Texas	39
8.	Tennessee	35
9.	Iowa	33
10.	Michigan	33

IDAHO

Aberdeen — Idaho Potato Growers; Galyn Muirbrook, Ch. of Assoc. Processing of frozen french fried potatoes, and other products. Plans announced. $500,000.

Boise — Vanquard Chemical Co.; Mining; processing, refining and distributing of berylium, fluorspar, columbium and other types of ore. Plans announced. $5 million.

ILLINOIS

Lincolnwood — General Aniline and Film Corporation; Dr. Leopold Eckler, V. Pres. & Gen. Mgr. 4255 Touhy Ave. Photographic film. In Oper. $1 million.

Union — Techalloy Co., Inc.; Mr. David Schmid, Pres. Stainless and heat resisting steels, monel, nickel, inconel, nickel clad copper and electrical resistance alloys wire and rod. In Oper. 40-acre site. $1 million.

INDIANA

No Plants Reported.

IOWA

Algona — Wilson & Co.; James D. Cooney, Pres. Hog slaughtering plant. Plans announced. 50-acre site. (D)

KANSAS

Bonner Springs — Midwest Quarries, Inc.; Robert Stanley, Pres. Lime. Est. date of Oper. May, 1960. $500,000. (B)

KENTUCKY

No Plants Reported.

LOUISIANA

Baton Rouge — Esso Standard Oil; H. J. Voorhies, Offl. Butyl rubber. Est. date of Oper., Sept. 1960. $1 million.

Homer — Ludlow Mfg. & Sales, Co.; Austin B. Nason, Offl. Gummed paper tape, plastic film. In Oper. $594,658. (B)

New Orleans — United States Gypsum Company; Joseph L. Haywood, Works, Mgr. Building lime, quicklime and hydrated lime. Undre Constr. Est. date of Oper., Sept. 1960. $1½ million. 10-acre site.

New Orleans — West Virginia Paper & Pulp Co.; David L. Luke, Offl. Paper and pulp. Est. date of Oper., July, 1960. $290,000. (B)

Vermilion — Golaid Corp.; C. T. Wells, Jr., Offl. Natural gas processing. Est. date of Oper., Oct. 1960. $3,364,000. (C)

MAINE

Bangor — King Cole Foods, Inc.; Potato Chips. In Oper. 15,000 Sq. Ft. (B)

Brewer — Emple Knitting Mill; Joseph Emple, Pres. Knitting. Est. date of Oper., April, 1960. $400,000.

Ellsworth — Hancock-Ellsworth Tanners, Inc.; Process imported sheepskins. Est. date of Oper., June, 1960. 50,000 Sq. Ft. (C)

Westbrook — Casco Mfg. Co.; Metal stamping. In Oper., 50,000 Sq. Ft. (D)

MARYLAND

No Plants Reported.

MASSACHUSETTS

Randolph — Trim Alloys Inc., Milton J. Smith, Pres. Aluminum extrusion. Interior metal moldings. Est. Date of Oper., Oct., 1960. 60,000 Sq. Ft. $250,000. 13-acre site. (C)

Salem — Sylvania Lighting Products Co.; Panelescent lighting. Est. date of Oper., Oct., 1960. 10,000 Sq. Ft. (B)

Waltham — Ionics, Inc.; Edwin R. Gilliland, Pres. Research and development of atomic energy, chemistry and life support systems for submarines and manned space vehicles. Plans announced. 80,000 Sq. Ft. 7.75-acre site.

MICHIGAN

Detroit — Ternes Steel Co.; W. A. Ternes, Pres. Steel. Plans announced. 82,000 Sq. Ft.

Saginaw — Mitts & Merrill, Inc.; K. P. Schoepper, Gen. Mgr. Keyseaters. Plans announced. $250,000.

MINNESOTA

Faribault — Faribault Mfg.; Plast products. In Oper. 14,000 Sq. Ft. 4½-acre site. (B)

Kenyon — Kenyon Mfg. Co.; Coil bed springs. In Oper. $100,000. (B)

Minneapolis — Minneapolis Honeywell Reg. Co.; Missile warheads, fusing devices. Under Constr. 50,000 Sq. Ft.

St. Paul — Petroleum Packaging Corp.; George J. Rutman, Pres. Jackson Ave. & Pennsylvania Ave. Petroleum packaging. Est. date of Oper., Apr. 1960. 100,000 Sq. Ft. (B)

MISSISSIPPI

Ackerman — Endicott-Johnson Corp.; Women's shoes. Est. date of Oper., Fall, 1960. $650,000. (C)

Baldwyn — Champion Industries, Inc.; Fiberglass boats, barbecue grills, awnings. Est. date of Oper., Spring, 1960. $230,000. (C)

Booneville — Lancer Industries Corp.; Fiberglass swimming pools, boats, etc. Est. date of Oper., Spring, 1960. $265,000. (C)

MISSOURI

Bridgeton — Pillsbury Co.; George W. Hosfield, Production Mgr. Flour and various food products. Est. date of Constr., Summer, 1960. 40-acre site. $4.5 million. (C)

Independence — Allis Chalmers Mfg. Co.; George Reuland, Mgr. Farm machinery. Plans announced. 71,280 Sq. Ft.

Joplin — Eagle-Picher Co.; Battery specialists. $105,000. 40,000 Sq. Ft.

O'Fallon — Drug Package, Inc.; John C. Broemmelsiek, Pres. Prints & Lithographs labels and makes paper boxes for prescriptions. Plans announced. 120,000 Sq. Ft. $1 million.

St. Louis — General Motors Corp.; 3809 Union Blvd. Automobile & trucks. Plans announced. 62,200 Sq. Ft. $1 million.

Warrenton — Warrenton Garment Co.; (Sub. of Phil Jacobs Co., Inc.) Ted Joines, Supv. Maternity wear. In Oper. (B)

MONTANA

Missoula — Waldorf-Hoener Paper Products Co.; N. H. Sandberg, Pres. Box linerboard. Est. date of Oper., Sept., 1960. $6 million. (B)

NEBRASKA

Omaha — Vickers, Inc.; John Slack, Mgr. Clear Ridge Airport, Crown Point Ave. & 72nd St. Hydraulic controls for construction equipment and machinery. Plans announced. 400,000 Sq. Ft. 92.7-acre site. (E)

NEVADA

No Plants Reported.

NEW HAMPSHIRE

No Plants Reported.

NEW JERSEY

Parlin — Du Pont Co.; Plastic plates for engravings. Est. date of Oper., 1961. (C)

NEW MEXICO

Alamagordo — Markham Chicago Corp.; U.W. Hess, Local Mgr. Parachutes for missiles, generator covers. Est. date of Oper., March, 1960. (B)

Carlsbad — Skelly Oil Co., Jack Dodd, Dist. Supt. Gas treatment plant. Est. date of Oper., May, 1960. $3 million.

NEW YORK

Brockport — Owens-Illinois Glass Co.; Carl R. Megowen, Prs. Glass containers, bottles and jars. Est. date of Oper., 1961. 70-acre site 300,000 Sq. Ft. (D)

Middletown — Electra Mfg. Co.; (Div. of Norbute Corp.) Metal electrical equipment. Plans announced. 16,000 Sq. Ft.

Orangeburg — Glenshaw Glass Co., Inc.; George W. Meyer, Pres. Glass containers.

NORTH CAROLINA

Hickory — Western Carolina Furniture Co.; Upholstered furniture. Plans announced. Est. date tof Oper., Mid-summer, 1960. 62,000 Sq. Ft. 8-acre site.

High Point — Mac-Netic Tape Co.; R. M. Duggins, Pres. Magnetic instrumentation tapes. Est. date of Oper., May, 1960. $350,000. (B)

Moncure — Virginia-Carolina Lumber Corp.; H. M. Hardy, Owner. Hardwood. Est. date of Oper., July, 1960. 15-acre site. $150,000. (B)

New Bern — North Carolina Products Corp., Henry M. Shaw, Pres. & Gen. Mgr. Pre-stressed concrete products. Under Constr. $250,000. (B)

NORTH DAKOTA

Bismarck — Dakota Malting & Brewing Company; M. A. Schensted, Pres. Beer & Malt. Est. date of Oper., 1960. $2 million.

OHIO

Columbus — Sears, Roebuck & Co.; Gordon M. Metcalf, V. Pres. Sandusky Street Warehouse and distribution center. Plans announced. 300,000 Sq. Ft., 46-acre site.

Mansfield — All States Freight Inc.; W. R. Mehl, Terminal Mgr. 555 Dewey Ave. Est. date of Oper., July, 1960. $300,000.

Toledo — Sears, Roebuck & Co.; J. J. Laughlin, Asst. Mgr. Fearing Blvd. Warehouse and service facility. Plans announced. 75,000 Sq. Ft.

Youngstown — General Electric Co.; Jack Lose, Mgr. Hendricks Rd. Display rooms & kitchens for appliances and televisions. In Oper. 24,000 Sq. Ft.

Youngstown — Youngstown Mack Truck Sales; Roy McKay, Owner. 3755 Mahoning Ave. Sell and service trucks. Plans announced. 15,000 Sq. Ft.

OKLAHOMA

Chickasha Mobile Home Mfg. Co.; Stan Raczynski, Pres. Mobile homes. Est. date of Oper., April, 1960. (B)

Ponca City — Continental Oil Co.; Harold G. Osborn, Senior V. Pres. Petrochemical plant. Cyclohexane. Est. date of Oper., Sept. 1960. $1 million.

OREGON

Astoria — American Can Co.; Canning. Under Constr. Est. date of Oper., 1960. ½-acre site. (B)

Portland — Coe Mfg. Co.; Hunziker Rd. Plywood machinery. Under Constr. 26,000 Sq. Ft.

Portland — States Batteries, Inc.; 26th and S. W. Raymond. Storage batteries. Plans announced. 20,000 Sq. Ft. $250,000.

PENNSYLVANIA

Carbondale — Eastern Wood Products Corp.; Wooden kitchen cabinets. Plans announced. 57,362 Sq. Ft. $370,000. (C)

Doylestown — Mark Chaft; Aircraft components. Plans announced. 21,600 Sq. Ft. (C)

Horsham — Ellwood Ivins Steel Tube Works; Steel tubes. Plans announced. 20,000 Sq. Ft. (C)

Lewisburg — Moore Business Forms Inc., Business forms. Plans announced. $1 million.

Red Lion — Autokraft Box Corp; Paper. Plans announced. 16,000 Sq. Ft. (B)

PUERTO RICO

Caguas — Paula Brassiere; (Splendor Form Co., New York City, N. Y.) Brassiers. Plans announced. (C)

Carolina — Electronics Conductors; (R. E. Phelon & Co., Inc., E. Longmeado, Mass.) Insulated magnetic wire. Plans announced. (B)

Catano — Household Necessities, Inc. (T. Bratton Assoc., Del Ave., Buffalo, N.Y.) Bleach and detergents. Plans announced. (B)

Catano — R. A. Electroplating Corp.; Stamping and assembly on jewelry etc. Plans announced.

Catano — Magic Disc Corp.; (Interstate Engineering Corp.) Fire alarm rug sweeper. Plans announced. (C)

Cayey — Tropi-Craft Enterprises, Inc.; Mr. Robert Riggle, Offl. Multiple screening rigid. Plans announced. (B)

Coamo — Valley Sportwear, Inc.; (Tal-

(Continued on page 48)

PLAN ON

PUEBLO

THE INDUSTRIAL HEART OF COLORADO

- **PLAN** your new plant in one of the West's Fastest growing cities . . . **PUBELO!**
- **SITES** are ready at the new Memorial Industrial Park, at the Pueblo Memorial Airport, or on land owned by four major railroads.
- **POPULATION:** 115,260
- **TRADE AREA POPULATION:** 600,000
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  4 Major railroads
  26 Truck lines
  2 Air lines
- **INDUSTRY:**
  43 Manufacturers
  77 Distributors
  1462 Commercial
- **COMMUNICATIONS:**
  2 Newspapers
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  Vacationland 30 minutes away for fishing, hiking, picnicking, swimming.
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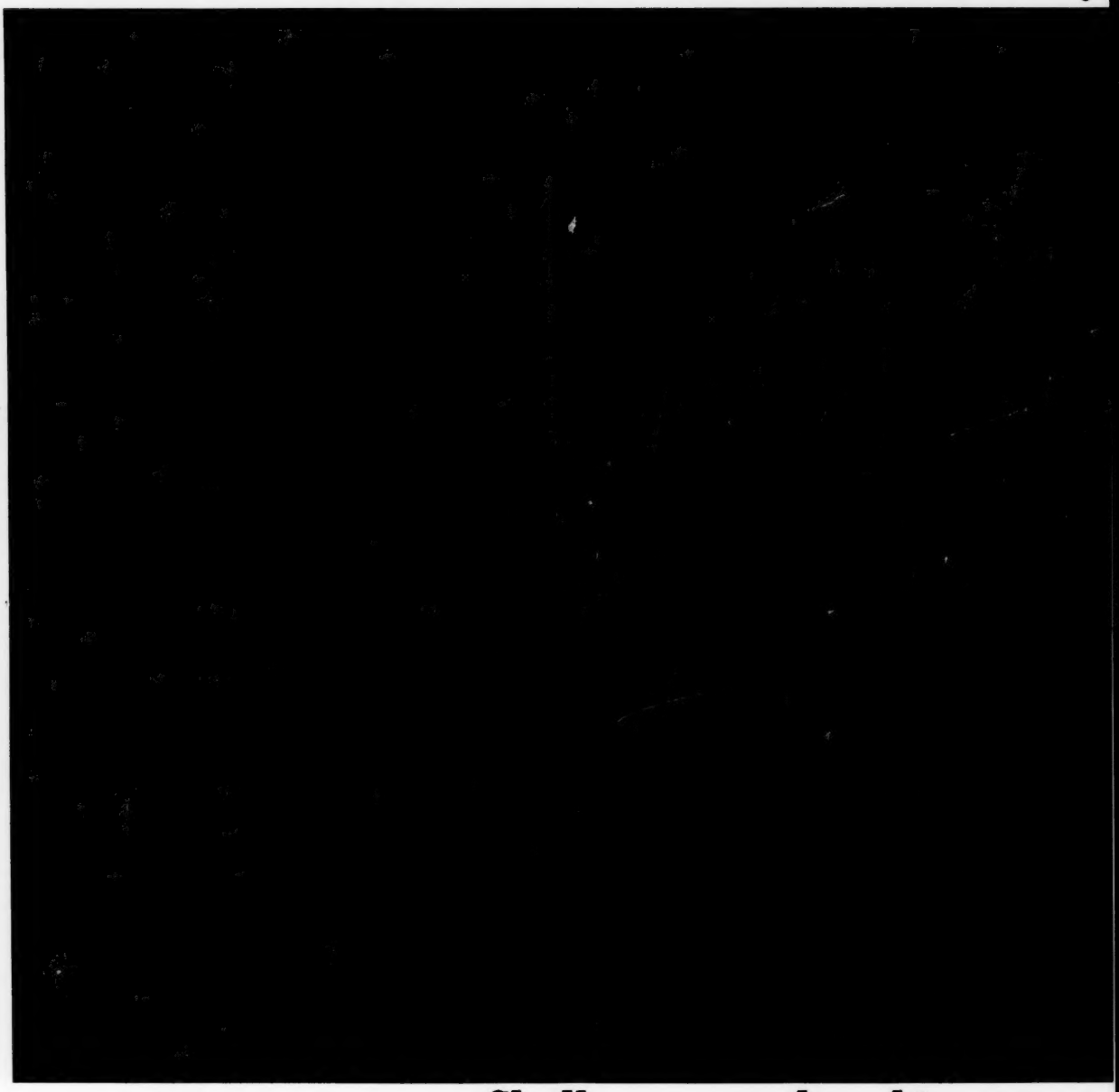
C. L. Thomson, Manager
PUEBLO CHAMBER OF COMMERCE
PUEBLO, COLORADO

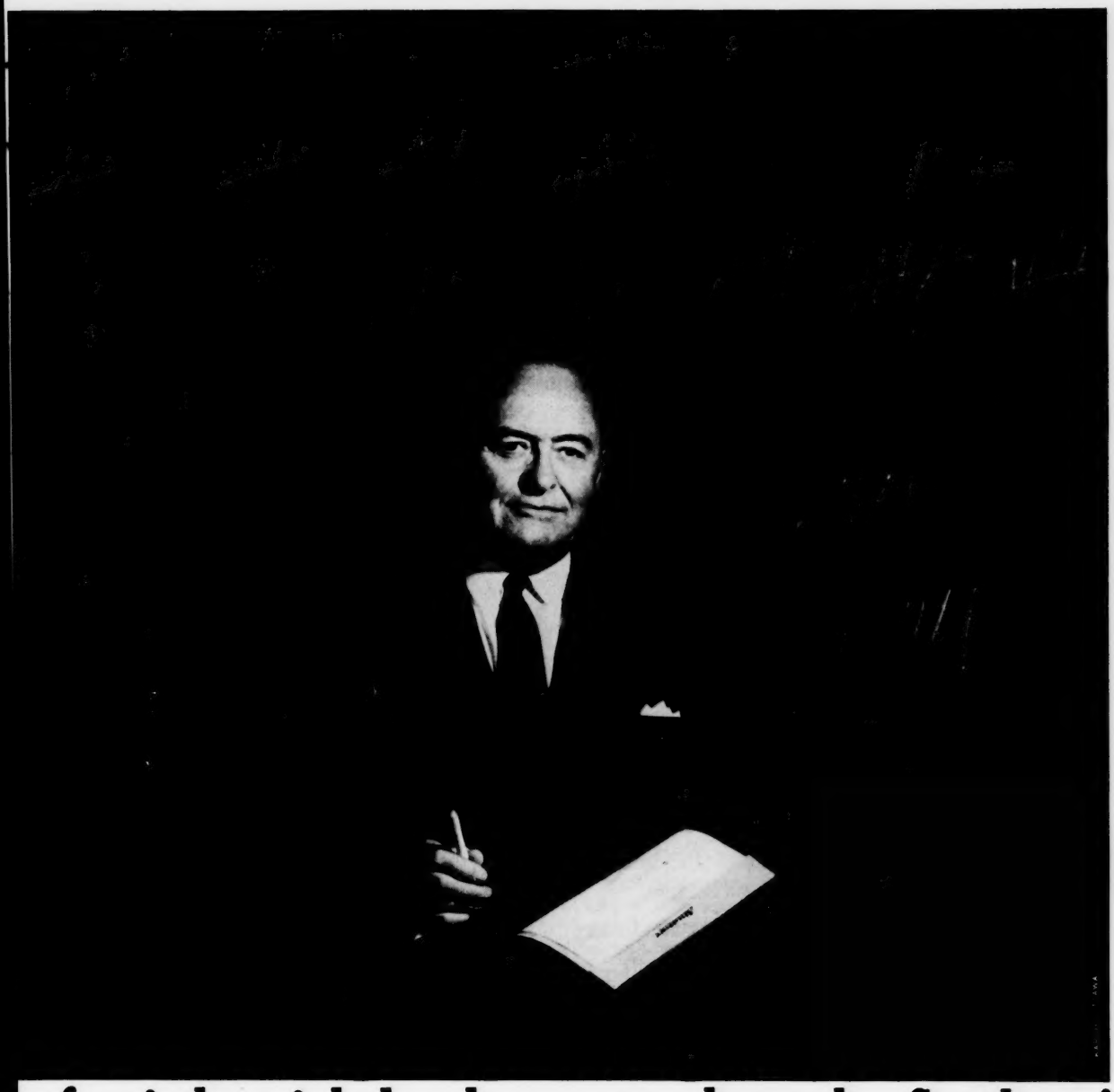


Chalk up another big year

Better than one every working day — that's the "score" for industrial developments along our lines in 1959. And what a range of activities they cover! Pulp and paper . . . chemicals . . . textiles . . . lumber, woodworking and building materials . . . metals and metalworking, to list but a few. You name it — the modern South has it.

Chances are, this fast-growing territory served by the Southern has what is good for *you*, too. Plentiful, willing-to-work manpower! Expanding markets for goods of all kinds! Raw materials and rich natural resources close at hand! Ample and economical electric power! Efficient, low-cost rail transportation!

All America is growing — but the *fast-growing* youngster of the "family" is the modern South!



for industrial developments along the Southern!

Right now plant site specialists in our Industrial Development Department are busier than ever consulting with companies, large and small, that are considering the modern South for greater opportunities and more profitable growth. But they aren't too busy to talk with you. They know many of the things you would like to talk about and, equally important, they know the importance of not talking about your plans with anyone but you.

Let us hear from you so that we can help you. *"Look Ahead—Look South!"*

Harry A. DeButts
PRESIDENT

The Southern Serves the South

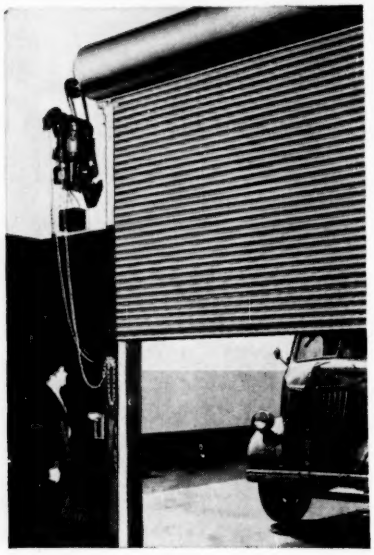
LOOK SOUTH
LOOK AHEAD

SOUTHERN RAILWAY SYSTEM

WASHINGTON, D. C.

Kinnear Rolling Doors

Send *Today* for this New Data on *Upward-Acting* Doors for Every Need



Door coils above the opening, completely out of the way.

Clears the entire opening — jamb to jamb, floor to lintel.

Opened door stays out of reach of wind or vehicles.

All surrounding floor and wall space is always fully usable.

Rugged all-steel curtain repels wind, fire, theft, vandalism.

Heavily galvanized curtain gives lasting resistance to elements.

(1.25 ounces of pure zinc per square foot of metal, as per ASTM standards.) Kinnear Paint Bond — a hot phosphate immersion assures thorough, lasting paint grip.

Smooth, easy coiling upward action saves time and labor.

Ideal for motor operation; remote control switches if desired.

Any size; quickly, easily installed in old or new building.

Your request will bring this 1960 Kinnear Catalog to you promptly — no cost or obligation!

Kinnear originated the interlocking slat door

Get full details on this complete line of time-saving, cost-slashing doors. They add highest efficiency to space-saving, coiling upward action. Kinnear offers a wide choice of flat and curved slats—fabricated of aluminum, zinc-coated steel, or other metals. They fit every need, from small counter openings to largest doorways. Slat sizes range up to the seven-inch "Goliath" slat at the extreme left, above — maximum protection against wind, weather, intrusion or vandalism!

Zinc-Coated *Dual* Protection

Kinnear Steel Rolling Doors feature extra-heavy hot dip galvanizing! 1¼-ounces of pure zinc per square foot of metal (in accordance with ASTM standards). And Kinnear's special phosphate treatment makes this zinc surface ready *immediately* for thorough paint grip.

Make sure you get this complete door guide — check it *now!*

KINNEAR
ROLLING DOORS
Saving Ways in Doorways

The KINNEAR Mfg. Co.
FACTORIES:
1600-20 Fields Ave., Columbus 16, Ohio
1742 Yosemite Ave., San Francisco 24, Calif.
Offices and Agents in All Principal Cities

DIRECTED BY
Richard Edmonds . . 1882-1930
Frank Gould 1930-1943
William Beury 1943-1955
McKinley Conway . . 1956

MANUFACTURERS RECORD
(IN REVIEW)

"What Enriches Any Region Enriches The Nation"

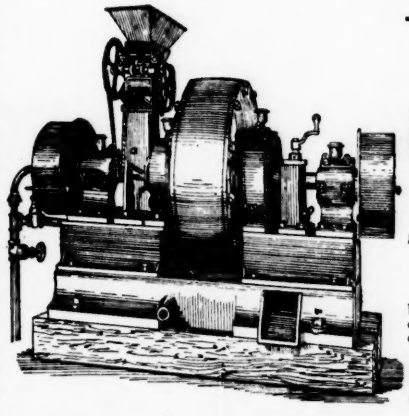
MARCH 1886 (AS ABSTRACTED MORE THAN 70 YEARS LATER) BALTIMORE, MD.

FOREMOST LITHOGRAPHERS

The lithographing establishment of Messrs. A. Heon & Co., Baltimore, is among the foremost in the world. In the reproduction by the chromo-lithographic process of paintings in water colors they have been so successful as to have stood the test in London of competition with French and English works of a similar nature. As a result, they not long ago received an order from the London publisher of "The Garden," a monthly magazine devoted to horticultural subjects, for a series of plates of flowers to be reproduced from originals in water colors, which were forwarded for that purpose. Some of the plates have been executed and forwarded to the publisher of "The Garden," who has expressed his entire approval of them. The plates already finished are as natural in coloring as they are good in drawing, and are fine specimens of the thoroughly artistic work that the Messrs. Hoen are capable of turning out from their establishment. One of the earliest evidences of the ability of the firm to make a perfect facsimile of a painting was the reproduction in colors of a German picture, which was such an exact copy that when placed side by side with the original it was difficult to distinguish one from the other. This copy was exhibited at the Centennial Exposition, and was considered such a fine piece of work that a gold medal was sent to the Messrs. Hoen. The process is patented by Mr. A. Hoen.

AN IMPORTANT INVENTION

To give to oyster and fruit labels and other colored printing the gloss that is required by those using them, it is necessary to varnish them. This has heretofore been an extremely expensive part of the work, for the reason that after being varnished the sheets had to be laid out singly on racks to dry. This of course involved a great loss of time and the employment of additional force, and necessitated a large amount of extra space to accommodate the racks. The sheets had to remain from 6 to 24 hours, according to the temperature of the room, before being ready to handle. The varnishing and drying of 4,000 sheets would require on an average 12 hours' time and the labor of 5 hands. A machine for doing this work has recently been patented by Mr. F. X. Hooper, proprietor of a machine shop at 12 and 14 Second Street, Baltimore, and is now in operation at the label printing establishment of Messrs. Guggenheimer & Weil, corner Lombard and Liberty streets. The sheets are fed by a boy to the glossing machine in the same manner as to a printing press, and are then carried automatically on a web or net to a drying chamber. After traveling the length of the drying chamber over hot-air pipes they are brought back through a cold-air chamber and automatically delivered on a receiver thoroughly dry and ready to be handled. It requres only one boy to manipulate this machine, and 1,000 sheets an hour can be glossed and dried.



A Phosphate Mill that has Come to Stay.

WARING'S

Centrifugal Pulverator

Manufactured by the DE LAMATER IRON WORKS.

Fully Protected by United States and Foreign Patents. Infringers will be Prosecuted.

A FEW OF THE ADVANTAGES OF THIS MILL:

The fineness of product is easily regulated without the use of screensor bolting cloths. No material is lost by escaping into the mill room. No re-pulverizing required. The Pulverator weighs 4,200 pounds and requires only ten horse power. Will give a product of 3,000 pounds an hour, pulverized to 80 or 150 mesh. The wear comes upon parts easily replaceable and inexpensive. For particulars address,

J. B. WARING & SONS, 106 and 108 Liberty St., NEW YORK.

bott Knitting Mills, Reading, Penna.) Skirts for women. Plans announced. (B)

Fajardo — Cameo Lingerie; Lewis Camhi, Offl. Women's undergarments. Plans announced. (B)

Hato Rey — Henry, Inc.; (Peter Pan Mfg. Co.; N.Y.C., N.Y.) Brassieres. Plans announced. (C)

Mayaguez — Margit Mfg. Co.; & Rayco Mfg. Co., Paramus, N. J. Automobile seat covers. Plans announced. (B)

Naguabo — Broiderette, Inc., (Broiderette Inc., N.Y.C., N.Y.) Applique embroidery. Plans announced. (D)

Sabana Grande — Marbill Ind. Inc.; (J. A. Garcia & Son & Lifetime, N.Y.C., N.Y.) Slips. Plans announced. (C)

Salinas — Embroideries, Inc.; (Pleat Rite, N.Y.C., N.Y.) Applique embroidery. Plans announced. (D)

San Juan — Vanity Embroidery Corp.; (Silvertone Undergarment, N.Y.C., N.Y.) Applique embroidery on ties & slips. Plans announced. (B)

Santurce — H. L. Seal Company, Inc.; Henry Laevsky, Offl. Hermetic seals. Plans announced. (B)

RHODE ISLAND

No Plants Reported.

SOUTH CAROLINA

Chester — Bell Chemical Company; William B. Carroll, Pres. Textile dye. Plans announced. 40,000 Sq. Ft. 9-acre site. $400,000. (C)

Hartsville — Carolina Power and Light Co.; Walter Selkinghous, Plnt. Supt. Steam-electric generating plant. Under Constr. Est. date of Oper., May, 1960.

Spartanburg — Seneca Grape Juice Co.; Juice products. Est. date of Oper., May, 1960. $250,000. (C)

COMING IN MAY

THE BLUE BOOK OF SOUTHERN PROGRESS

A SURVEY OF THE SOUTH AND ITS ECONOMIC PROGRESS PUBLISHED ANNUALLY FOR MORE THAN FIFTY YEARS.

A SPECIAL EDITION OF

INDUSTRIAL DEVELOPMENT MANUFACTURERS RECORD

The International Guide to Industrial Planning and Expansion

SOUTH DAKOTA

No Plants Reported.

TENNESSEE

No Plants Reported.

TEXAS

Arlington — General Printing Ink Co.; (Div. of Sun Chemical Corp.) Ink. Plans announced. $1 million. 4½-acre site.

Beaumont — Zummo Meat Co.; John F. Zummo, Mgr. Slaughtering and meat processing. Plans announced. $300,000. 10-acre site.

Conroe — Jefferson Chemical Company; George R. Bryant, Pres. Morpholine intermediates. Est. date of Oper., mid-1960. 85-acre tract. (B)

El Paso — Topnotch Manufacturing Co.; Cypress Ave. and Walnut and Piedras Sts. Blue jeans. Plans announced. 82,000 Sq. Ft. 4-acre site.

Falls City — Susquehanna-Western, Inc.; Allen D. Gray, Pres. Chemically treated uranium-baring ores to produce uranium concentrate. Plans announced. $2.5 million.

Fort Worth — Pelham Mfg. Co.; R. M. Brodeus, V. Pres. Building materials. Plans announced. 40,000 Sq. Ft.

Fort Worth — Western Builders Supply Co.; Hwy 183. Concrete blocks. In Oper. 35,000 Sq Ft. $500,000.

Houston — City Poultry & Egg Co.; Lawrence T. Smith, Gen Mgr. Cochran Street. Poultry processing plant. Under Constr. 12,000 Sq. Ft. $135,000. (B)

Houston — Mail-Well Envelope Co.; A. Clinton Stephens, V. Pres. Bowie Street. Plans announced. 90,000 Sq. Ft. site. 70,000 Sq. Ft. bldg. $1 million.

Hurst — Rambler Boat Co.; Frank Putt, Pres. Fiberglass boats. In Oper. 21,700 Sq. Ft.

Longview — Udell, Inc.; H. U. Garrett, Pres. High pressure pumps for the oil refining and petrochemical industries, oil industry tools and machinery. Plans announced. 21,000 Sq. Ft.

Mission — Hoerner Boxes, Inc.; W. E. Ray, Plant Mgr. Hwy 83 East. Corrugated paper shipping containers. In Oper. 8-acre site. 20,000 Sq. Ft. (C)

Orange — Allied Chemical Corp.; Bennett D. Buckles, Gen. Mgr. High density polyethylene. Est. date of Oper., Fall, 1960. 650-acre site. $Multi-million.

Plano — Lone Star Boat Co.; D. O. Tomlin, Pres. Boat and boat trailers. Est. date of Oper., late 1960. 40-acre site. (D)

San Antonio — Felvey Container Corp.; T. Stewart Felvey, Offl. 108 Crosby. Corrugated shipping containers. In Oper. $100,000. (B)

UTAH

No Plants Reported.

VERMONT

No Plants Reported.

VIRGINIA

Danville — P. Lorillard Company; Lewis Gruber, Bd. Chmn. & Chief Exec. Officer. State Hwy 58. Tobacco processing. Est. date of Oper., Spring, 1960. 148-acre site. $7 million. 14½-acres of floor space. (E)

Lynchburg—Wyerhauser Southern Corp.; Ivan D. Wood, Exec. V. Pres. Hwy 128. Corrugated shipping containers. Est. date of Oper., Fall, 1961. 50,000 Sq. Ft.

WASHINGTON

Seattle — Simpson Timber Co.; H. W. McClary, V. Pres. Research lab—Doors, insulating board plywood, etc. Est. date of Oper., 1960. (B)

WEST VIRGINIA

Middleway — Minnesota Mining & Mfg. Co.; E. J. Kane, Gen. Mgr. Printing products. Est. date of Oper., early, 1961. (B)

WISCONSIN

Cedarburg — Pioneer Container Corp.; Jack V. Dreyer, Pres. Corrugated containers. Est. date of Oper., March, 1960. $250,000 (B)

Owen — Frederick Post Mfg. Co.; R. J. Piehl, Pres. Drafting boards, equip. Est. date of Oper., 1960. $600,000 (C)

West Allis — Brake & Equipment Co.; O. W. Schroeder, Pres. Truck bodies, equipment. Est. date of Opr., August, 1960. $400,000 (C)

WYOMING

No Plants Reported.

CANADA

ALBERTA

Calgary—British-American Oil Co., Ltd.; E. J. Loughney, Pres. Gasoline. Est. date of Oper., End, 1960. $2.5 million.

Calgary — Western Rolling Mills, Ltd.; Harold Cohen, Pres. Box 250. Merchant bar steel. Est. date of Oper., Dec. 1960. $1.25 million. (C)

Okotoks — West-Can Plastic Industrial, Ltd.; Stuart Hollis, Pres. Shotgun shells. Est. date of Oper., Late fall, 1960. $250,000. (A)

BRITISH COLUMBIA

MANITOBA

NEW BRUNSWICK

NEWFOUNDLAND

NOVA SCOTIA

No Plants Reported.

ONTARIO

Lakeview — Nordic Steel Products Co., Ltd.; 1044 Rangeview Rd. Truck tanks, manifolds, valves and other specialized controls used for petroleum handling. In Oper. 10,000 Sq. Ft.

Toronto — Brantford Washing Machines, Ltd.; 35 Fieldway Rd. Washing machines, Electric ranges, rangettes and built-in ranges. Under Constr. 62,700 Sq. Ft.

Toronto — Canadian Demag Ltd.; H. H. Herzog, Mgr. Queen Elizabeth Way. Equipment for steel and rolling mills, mines, contractors, crane mfgs, gates and railways. Plans announced. 14-acre site. 12,000 Sq. Ft.

Toronto — Drackett Co. of Canada Ltd.; George Bedard, Plant Mgr. Drain cleaner, window cleaner and other household cleansing agents. In Oper. 19,500 Sq. Ft. 2½-acre site.

PRINCE EDWARD ISLE

QUEBEC

SASKATCHEWAN

No Plants Reported.

FOREIGN

Bolivia — Bolivian Oil Co. is reportedly planning to put up a $4 million, 8,000-ton/year carbon black plant using locally produced gas. The project is up for approval by the state petroleum agency.

France — Colmar. Timken Roller Bearing Company; D. A. Bessmer, Pres. Shipping center. Plans announced, $300,000. 15,000 Sq. Ft.

India — Trombay. Vitro Corporation of America; Dr. Norman A. Spector, Pres. Radiochemistry, radioisotope and hot metallurgy operations. High-level radiation laboratory. Plans announced. 100,000 Sq. Ft.

Morocco — Safi. Sutrima, a company formed by the Moroccan government, and several European buyers of phosphates will build a $13 million (200,000-tons/year) plant at the southern port of Safi, linked by rail with phosphate deposits at Louis Gentil.

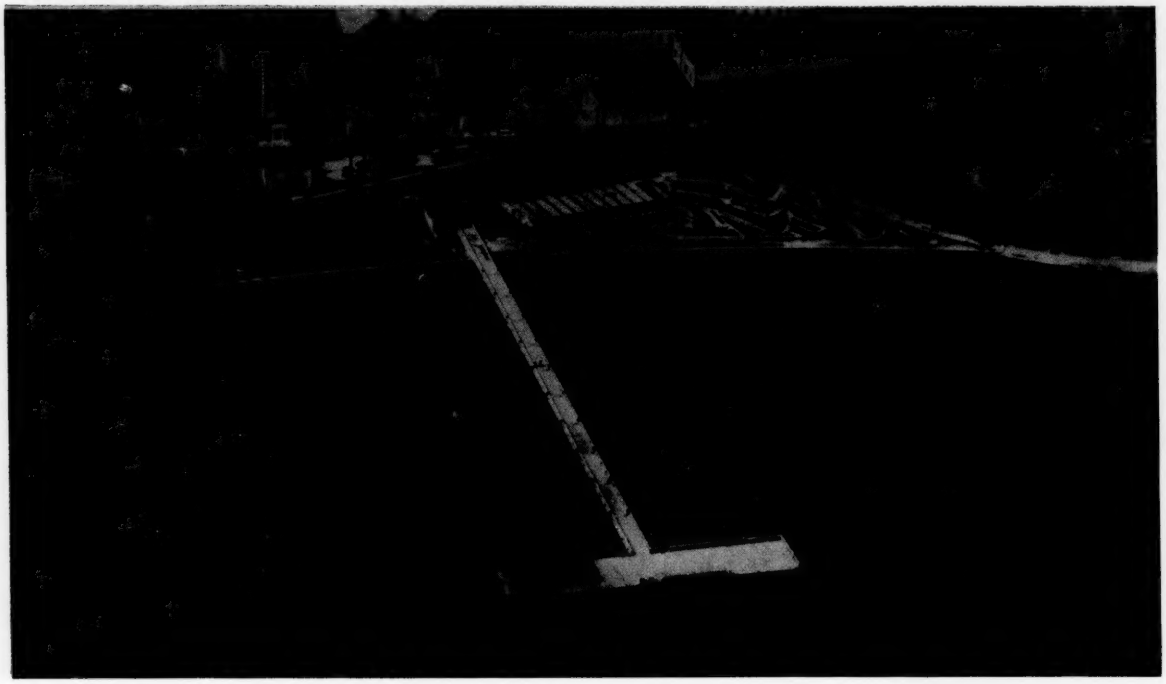
ST. AUGUSTINE

In your look at St. Augustine you will find that the nation's oldest city is today combining its Old World attractions with a program of building and improvement which is making the area increasingly more attractive as a location for many types of commercial and manufacturing facilities.

AN AREA SURVEY BY

INDUSTRIAL DEVELOPMENT MANUFACTURERS RECORD

THE INTERNATIONAL GUIDE TO INDUSTRIAL PLANNING AND EXPANSION



The handsome new yacht pier on the St. Augustine Bayfront is one of the outstanding features of this area which has recently undergone and is continuing to undergo beautification and improvement.

THE "OLDEST CITY"

Situated on the shore of the Atlantic ocean, and on the Inland Waterway, St. Augustine can also offer you such assets as good rail and highway transportation, a dependable work force, huge acreages of flat land suitable for plant sites, plus a unique historic and cultural background, and recreation facilities that are among the nation's best.

BIDS FOR NEW GROWTH

By JOUETT DAVENPORT, JR.

ST. AUGUSTINE. Steeped in history, with evidences of the charm of Old Spain on every hand, this beautiful city of sunshine and sub-tropical vegetation today is undergoing one of the most significant changes in its nearly four centuries of existence.

It's true that the peaceful atmosphere of the nation's oldest town is much the same as it was following the end of the War Between the States. And, it's also true that the historical and natural attractions that have long made this a foremost tourist mecca have not been altered.

The change that is occurring is not yet evident in a physical way but, rather, is one that you learn about in chatting with city and county officials, and progressive business and civic leaders. It's simply this: St. Augustine and St. Johns County have decided they need a lot of new industrial payrolls and are making positive, planned moves toward implementing an industrial development program.

As expressed by W. N. Hall, manager of the big Fairchild aircraft modification facility here: "Just during the past year this community has become much more receptive to the idea of bringing in additional industry."

The Fairchild operation, which is the largest single industrial facility in the area, has current employment of approximately 400 and a payroll of some $40,000 a week.

"Generally speaking," Mr. Hall added, "we have been well received here and have found the city and county governments, as well as the Chamber of Commerce, most cooperative in giving any help we need."

The Fairchild executive made the point also that the pleasant climate and other amenities of living in St. Augustine had made it "very easy" for the company to recruit specialists in aircraft work from other areas.

Concerning the city's new efforts to attract industry, William C. Edmiston, president of the St. Augustine-St. Johns County Chamber of Commerce told us in an interview: "We have been trying recently to overcome whatever shortcomings St. Augustine may have had to make it a more attractive place for people to live. Industry goes where people want to live, and that is the approach we are making here. I think that our greatest single asset for locating here is amenities."

Insurance and real estate man John D. Bailey backed up the Chamber president's view with the comment that, "I think the time is right for real growth here, as the attitude of the people here toward getting new industrial payrolls is generally good now."

Mr. Bailey, who is chairman of the Chamber's Convention Committee, added that redoubled efforts are being made to provide additional convention facilities and to attract more convention groups to the city.

One of the most enthusiastic boosters of the city and county is Vincent Amato, owner and manager of the Western Auto Store which serves the whole St. Johns County area. "I am ready," he asserted, "to help out personally in financing development programs here and would certainly extend full cooperation to anyone locating a new facility in the area."

Also president of the Security Federal Savings and Loan Association, Mr. Amato pointed out that this organization alone has $5.5 million which it is "eager" to lend to help new construction programs.

He described his volume of retail business as "consistently good" and said it had enjoyed steady growth during the 23 years he has had the Western Auto store here.

Our stroll along St. Augustine's picturesque streets took us from Mr. Amato's establishment to the furniture store operated by Fred Green. He re-

vealed how well retail business is going here with the observation that "1959 was the best year I ever had."

However, he emphasized, "for this to continue and for our area to grow as it should, new industry is a must. I'm optimistic about the prospects, for I think the community is better prepared and able to handle new plant developments than ever before."

W. F. Clark, 1959 president of the St. Augustine-St. Johns County Chamber, was one of the leaders who spearheaded St. Augustine's new industrial drive, and he reiterated Mr. Green's sentiments on the area's new receptiveness to industry. "The prospects are excellent," he asserted, "and we will continue to work hard toward making them even better."

Later, when we stopped for a lunch of fried shrimp, fresh from the nearby Atlantic, at the restaurant operated by Jim Alexander, we found further encouragement for the site seeker in St. Augustine.

Ebullient Mr. Alexander admitted that in the past "the town has been dormant," but added: "Things have definitely changed now, however, and people here have become more receptive to the idea of bringing in additional new industrial and commercial establishments.

"Any community that wants to get new enterprises," he continued, "has to have something competitive to offer the prospects. I think we have outstanding things to offer here in the form of the wonderful climate, a strong program of school improvement, natural gas coming in soon, good rail freight facilities, plenty of good, flat land at reasonable prices, and adequate necessary services such as power and water. We also are a center of culture and are close to the University of Florida and other big colleges."

"And," he stressed, while deftly pouring a glass of wine, "we certainly have good eating places."

H. E. Wolfe, chairman of the board of the Exchange Bank of St. Augustine and also president of H. E. Wolfe Construction Company, said he believed that "the outstanding asset here is working conditions. While we are not expanding as rapidly as some other areas, expansion is all around us and is continuing to move in. This means, in my opinion, that industrial areas can be had cheaper here, and there is room for expansion on a less costly basis than in some of the highly developed areas."

Stressing the need for aggressive selling of the city and county, Mr. Wolfe allowed, "I think that while we are doing very well, we also have been dragging our feet. I feel that we have more to offer than a lot of other places, with maybe an extra dividend or two, and it's up to us to make the most of that."

City and County Officials Welcome Industry

Substantiating the views we received from this

W. C. Edmiston, Jr., president of the St. Augustine-St. Johns County Chamber of Commerce, says: "I think that our greatest single asset for locating here is amenities."

Located on the Bayfront, this handsome building houses the offices of the Chamber of Commerce here as well as an attractive information center which has proved to be increasingly popular with visitors. The parking lot adjacent to the building was recently paved and expanded.

cross section of business, industrial and civic leaders were the comments made to us by city and county officials.

City Commissioner James E. Sinyard noted, for example, that "community spirit is steadily improving here. Any new facility that comes to St. Augustine can expect to get full cooperation, all the way, from the city government. We are steadily improving all community services and feel that we can meet the needs of many types of new commercial and industrial enterprises."

Among the improvements he cited were the new high school, which has 2,000 students, and the $2.9 million school improvement and expansion program of St. Johns County.

Echoing this sentiment was A. H. Craig, state legislator from St. Augustine-St. Johns County. "All members of the legislature will cooperate to the fullest extent with anyone interested in locating in the area," he declared.

In a further discussion of improved community services, Mayor J. Earl Mickler, who has been a leader in working to get Eastern Airlines regular service into St. Augustine, said he thought this service would be "one of the greatest things that has ever happened to the city. It will not only improve the tourist trade coming in here but also will be a great help to the entire economy."

Among the things being pushed by the mayor, with the cooperation of city and county leaders, are work on the new industrial park, concerted efforts to keep existing industry, development of a city natural gas system under direction of a utility commission, with no tax burden on the citizens; completion of the city's Bay Front Project, development of sufficient off-street parking; a sanitary sewer system paid for by the city utility tax and a grant from the Federal Government, and a city-wide beautification program.

In our visit to the St. Johns County Court House, we found Tax Assessor R. H. Mattox willing to take time out to emphasize that any new industry coming into the area "will get fair tax treatment, paying only their equitable share. We have no give-away programs," he asserted, "but our assessments are fair, and our tax rates compare favorably with other similar areas in Florida and other states."

Another leader here who has been in the vanguard of the city and county's new industrial development efforts is County Commissioner George Beech. He pledged continuing full cooperation of the county government in these efforts and stressed that St. John's County has "an adequate budget" to carry on the program.

St. Augustine has the city manager-commission form of government, with a mayor, as we noted, and a board of five commissioners. The administration is by the city manager.

Special departments include the city attorney, judge, sanitation, police and fire departments, engineer; building, electrical and plumbing inspector,

An enthusiastic booster of the St. Augustine area is H. E. Wolfe, chairman of the Exchange Bank of St. Augustine. His opinion is that, "We have more to offer than a lot of other places . . . and it's up to us to make the most of that."

Mayor J. Earl Mickler has been one of the leaders in getting Eastern Air Lines service into St. Augustine. He described the new flight schedules into the city as "one of the greatest things that has ever happened."

The Fairchild Aircraft Corporation's modification and repair facility here is the largest single plant in the St. Augustine area. It employs approximately 400 persons and has a payroll of around $40,000 a week. The unusual structure is open on all four sides in the repair area, and offices are located at second story level under the roof.

tax collector and assessor, treasurer and bookkeeper.

St. Johns County is administered by a board of county commissioners. Special departments include a clerk of the superior court, sheriff, tax assessor and collector, supervisor of registrations, judge, superintendent of public instruction, justice of the peace and constable.

In the tax structure here, referred to by Mr. Mattox, property is assessed at 30 per cent valuation, and the average millage of the county is 44.75 per thousand. Millage varies from year to year with expenditures of the county.

Exemptions are $1,000 on household goods and personal property, based on fair market value.

St. Augustine and St. Johns County also get the benefit, of course, of the tax structure of the State of Florida which generally shows a climate favorable to business and industry.

The state is, for example, well below the national average in licenses, fees, insurance and utility taxes.

In addition, Florida has no state income tax on either individuals or corporations, it imposes no state ad valorem tax or inheritance taxes, and has no general obligation state debt.

A boon to residents is the fact that Florida's Homestead Exemption law provides that the first $5,000 of assessed value of a person's homestead shall be exempt from all taxation.

The City is Attractive to Workers

As Fairchild official W. N. Hall noted, it is easy to attract all types of personnel to St. Augustine because of the desirable aspects of living here. Workers also can be recruited from surrounding inland Florida counties whenever needed.

St. Augustine shares with the rest of Florida a "right to work" law which was passed in 1944. The amendment states that, "The right of persons to work shall not be denied or abridged on account of membership or non-membership in any labor union, or labor organization."

Current estimates are that not more than 200 workers in the area, outside railroad organizations, belong to unions, as labor organizations here are generally limited to construction and transporta-

tion. The greatest number in unions are in the latter category.

An important contribution to the upgrading of the work force in the immediate area during recent years has been the St. Johns River Junior College which gives additional valuable training to hundreds of county residents who might not otherwise have had the opportunity to go to an institution of higher learning. Good industrial training also is available at the St. Augustine High School, as well as at the Florida School for the Deaf and Blind.

An Immediate Market Area of Five Counties

The oldest county in Florida, St. Johns County has an area of 389,760 acres and is located in the northeast part of the state, with the Atlantic Ocean as its eastern boundary. Surrounding counties are Duval on the north, Clay and Putnam on the west, and Flagler on the south. The Saint Johns River forms a natural boundary to the west for almost the entire length of the county.

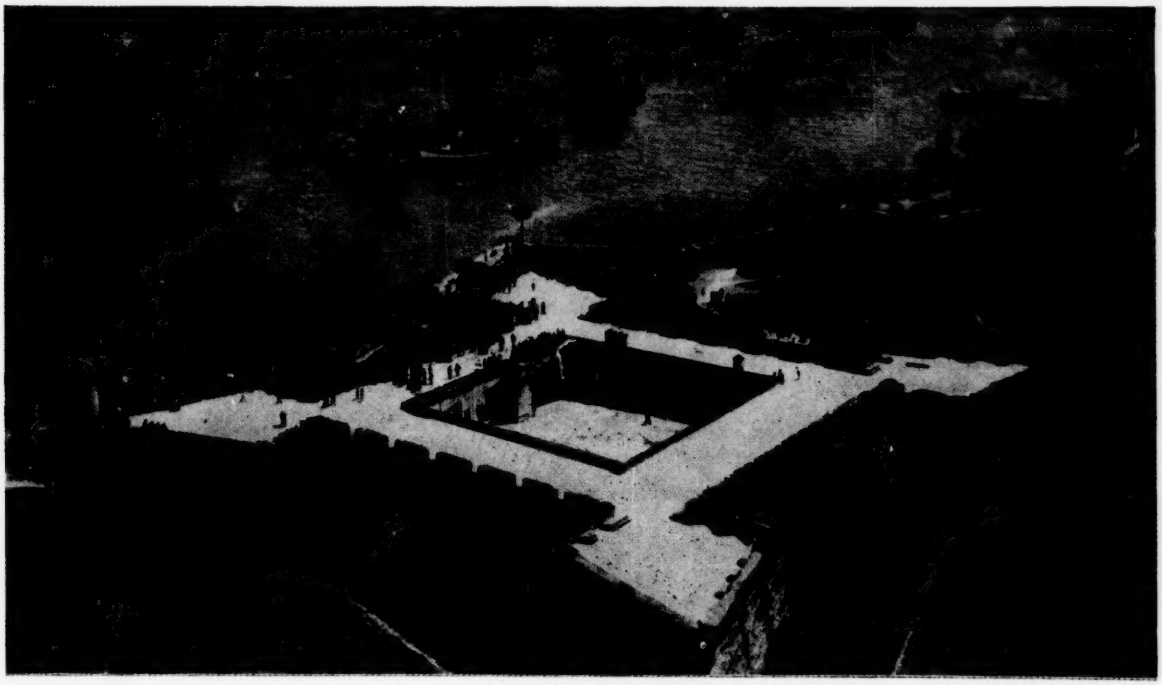
The population of St. Augustine was estimated at 22,000 at the end of 1959, up from 18,000 in 1955, while the latest estimates for the county were 33,000 in 1959, as compared to 27,378 in 1955.

In the immediate market area comprised of the surrounding counties population estimates were 450,000 for Duval, 18,500 for Clay, 5,500 for Flagler and 33,500 for Putnam.

Located only 36 miles south of Jacksonville and 45 miles north of Daytona Beach, St. Augustine also is relatively close to other major market areas, both in Florida and in the Southeast. These distances are examples: Miami, 310 miles; Atlanta, 363 miles; Birmingham, 476 miles; Charleston, 307; Savannah, 196, and Richmond, 695.

In addition to its stable population, the beauty of St. Augustine and its historic shrines attract visitors by the hundreds of thousands each year. Thus tourism is by far the city's biggest business and will certainly continue to be on into the indefinite future. However, since the millions of dollars spent by these tourists also can help support considerable expansion of local commercial and industrial enterprises, the influx of visitors is one of the city's biggest assets from several standpoints.

St. Augustine also is located in one of the nation's fastest growing states, the percentage of increase in Florida's population being 37 per cent from 1950 to 1958. That compares with 10.5 per cent for South Carolina, 9.2 per cent for North Carolina,



With the St. Augustine shrimp boat fleet in the background, historic "Castillo de San Marcos" was built by the Spaniards of coquina rock and dates back to 1672. It is considered the oldest standing fort in the United States and has been preserved in virtually its original state. A major attraction for tourists, the fort has many thousands of visitors each year. It is located in a verdant park on the Baytront.

9.3 per cent for Georgia and 2.7 per cent for Alabama.

Other communities within the county include both Hastings and Elkton, the latter being unincorporated.

Located in the southwest part of St. Johns County, Hastings has a population in its immediate area of approximately 2,900. It has a labor force available locally and from the surrounding territory, and a large force of migrant farm labor is used annually.

Hastings is fortunate transportation-wise, as it is located on a line of the Florida East Coast Railroad and on State Roads 206, 207, and 13. U.S. 1 and 17 are only a short distance away, and the St. Johns River is immediately west of the town.

Major employers in the community include Barnes Lumber Company; Maltby Manufacturing Company, which produces wooden tanks and tubs; several large commercial farms producing potatoes and cabbages, and Wetumpka Fruit Company, citrus.

Utilities available include a franchised private water system, power from Florida Power and Light Company, a municipal sewage disposal plant, dial service through North Florida Telephone Company, and natural gas connections are anticipated for 1961.

The town has a mayor-council form of government and police and fire departments. There are also two elementary schools and two high schools.

Of special interest to industry is the fact that there is an ample supply of hardwoods and softwoods in the area, and the timber lands have been under fire protection and management for many years. Opportunities also are open for industries oriented toward local agriculture, producing such things as bags and crates, specialized farm equipment, sprays and insecticides, and so on.

Elkton is primarily an agriculture area, with plenty of timber available, and a small labor force is available. The population of the community is about 500 persons. It is on Route 207, seven miles from St. Augustine.

Rail, Highway and Water Transportation Serve Area

St. Augustine is the home of the general offices and shops of the Florida East Coast Railway which is one of the major employers here.

The line has through passenger service between St. Augustine and points in the mid-west by three routes. Also, through service from here to New York is offered by five routes connecting with the FEC.

In our visit to FEC headquarters, we were told that the railway is "very much interested" in a substantial and continuing increase of freight traffic to and from this area and that the line is well able to handle such an increase.

FEC Industrial and Traffic Development Agent John E. Corbett stressed: "We have an excellent team track layout here, and new and modern passenger station and freight house facilities. This alone makes a large potential for industrial growth insofar as transportation is concerned. We can offer," he added, "local daily service on freight, plus supplemental service if it is needed."

When asked about the industrial park which the community is in the process of developing, Mr. Corbett said that since the FEC main line runs alongside the property, spur tracks can be constructed "at nominal cost" into the flat, easily accessible area.

Additional services of switching lines and freight forwarders are available in nearby Jacksonville.

For road traffic north and south, St. Augustine is served by U. S. Highway 1 and State Highway A1A. The latter is the scenic route that follows the shore of the Atlantic from Miami to Jacksonville Beach. Other highways serving the city directly are State 207 and 16. St. Augustine also is on what will be Route 95 of the new Federal Interstate Highway System.

Ten major freight carriers serve St. Augustine directly. These lines provide daily pickup and delivery service at all their terminals and operate on fixed time schedules to hundreds of points over the nation.

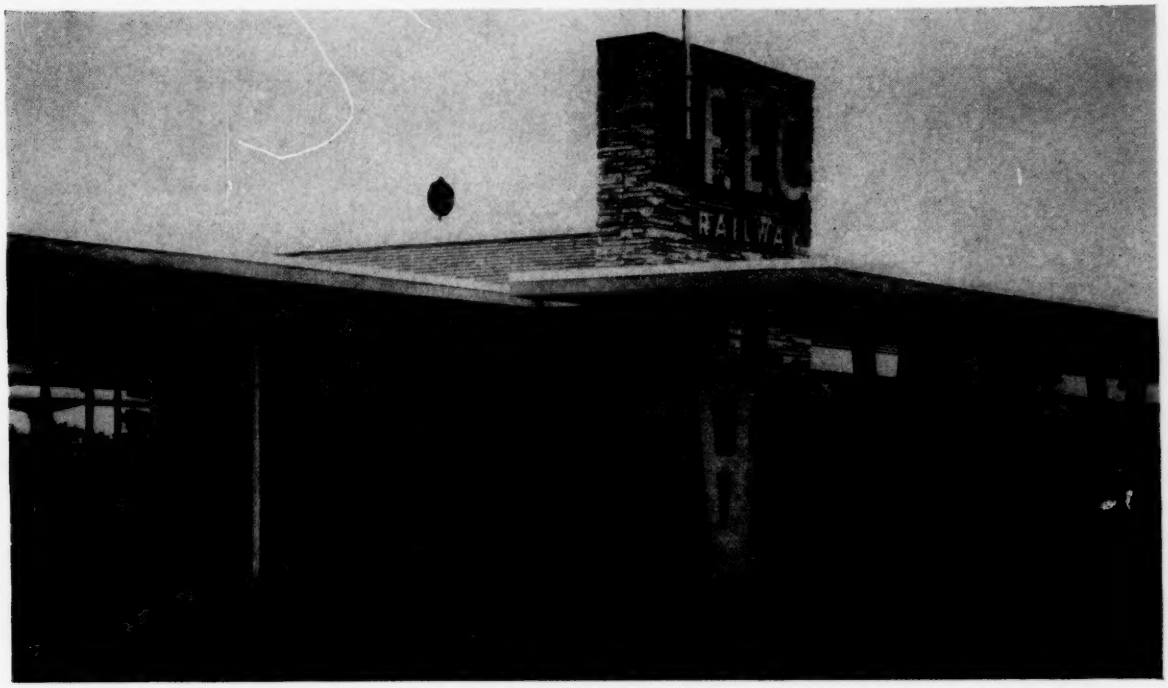
In addition, 12 motor freight carriers operate through and out of the Jacksonville area, and specialized truck carriers which provide contract automobile and truck transport service also are located in Jacksonville.

Highway passenger service is provided to and from the city and county, to all points in the country, via the Florida Greyhound Bus Lines.

Direct passenger, air freight and air express service was to begin in and out of St. Augustine the latter part of February on an Eastern Air Lines regularly scheduled route. Besides this, with less than an hour's drive to Jacksonville you can make airline connections with Delta Air Lines, National, Northeast, Southern, and Capital, as well as Eastern.

The St. Augustine airport is located four miles north of the city and has suitable facilities for private aircraft.

Convenient to waterways transportation, St. Augustine is located on a peninsula, facing Mantanzas



The Florida East Coast Railroad provides both freight and passenger schedules to St. Augustine. In addition to this modern new passenger terminal here, the line has new freight house facilities. FEC Industrial and Traffic Development Agent John E. Corbett says, "We can offer local daily service on freight, plus supplemental service if needed."

Bay, only a short distance from the Atlantic Ocean. Sea traffic enters the area through the government-dredged St. Augustine Inlet which is adjacent to the Bayfront of the city. Waters in the inlet flow into the Intra-Coastal Waterway which runs almost the entire length of the east coast of the United States.

The waterway running to the north of St. Augustine is called the Tolomoto or North River, while to the south it is known as the Matanzas River. Branching off from this southern section of waterway and running in a northerly direction west of St. Augustine is the San Sebastian River. This is used by the St. Augustine shrimp fleet, terminating at the King Street Bridge.

There is an average depth at mean low tide of 10 to 12 feet in the St. Augustine Inlet, the approach from the sea buoy, the Intracoastal Waterway, and the Mantanzas and San Sebastian Rivers. While currents are noticable in these waterways, they are not prohibitive to navigation.

Tugs, barges and other commercial vessels, as well as pleasure craft, are able to use these waters day or night, as channels are officially marked and charted.

Recently completed by the city is a new concrete yacht pier with creosote piling finger slips, dockmasters' quarters, and fueling facilities to handle the large number of pleasure craft which tie up here each day. Some small government craft also occasionally make use of these facilities.

Also used for commercial transportation and pleasure boats is the St. Johns River which borders the county on the west. Numerous small but deep water creeks branch off the river.

Opportunity for Water Oriented Industry

An example of a plant that was located here directly as a result of the waterways and the nearness of markets and raw materials is Diesel Engine Sales, an organization which builds shrimp trawlers.

The plant is on the shore of the San Sebastian River, and after the hull of a boat is built it is slipped directly from the building area of the plant into the water.

"The trawlers are built primarily from Florida cypress and oak from nearby Georgia sources," Assistant Manager George Myers told us. In further discussion of the operation, Mr. Myers said, "We can always get plenty of the kind of workers we need here, and have found that they are dependable and easy to train. We currently have some 55 skilled workers on the job, and most of these are long-time employees."

One of the important long-established industries here is Diesel Engine Sales, an organization which builds shrimp trawlers. Serving an extensive market the company recently built this fleet of trawlers to go to El Salvador, San Salvador, in Central America. Cypress and oak from nearby sources are used in constructing the boats.

Located here for the past 15 years, the plant actually serves a world-wide market, a fleet of trawlers having recently been sold to an organization in El Salvador, San Salvador, in Central America.

"Since the market for shrimp trawlers is limited to some degree," Mr. Myers added, "we may branch soon into producing a line of party boats which will be built along the same lines as the trawlers."

Originally from Kalamazoo, Michigan, Mr. Myers said he particularly liked living in this area because of the "delightful year 'round climate, great variety of sports available, and general attractiveness of the city and its surrounding area."

In addition to such activities as boatbuilding, many leaders here feel, there are opportunities open for the further development of industry in connection with the big shrimping operations, as well as the catch of other seafoods. This could include various processing, canning and pickling operations.

Fresh water needs for the St. Augustine area come from ground sources. The water is drawn from artesian well fields that are from 65 to 90 feet in depth, and the transmission lines to the treatment plants are from three to four feet underground.

Throughout the distribution system the water temperature is constant at from 73 to 75 degrees Fahrenheit all year, with the exception of times when load demands call for use of water from reservoirs.

The present pumping capacity is five million gallons a day. There is a minimum charge of $2 a month for water within the city limits, and this applies to amounts from zero to 3,500 gallons. The cost of additional amounts is in a graduated scale ranging from 35 cents per thousand gallons on amounts of from 3,500 to 16,000 gallons, to 28 cents per thousand gallons on amounts over 500,000 gallons.

Outside the city limits, the minimum charge is $3, while the cost for additional amounts ranges from 45 cents per thousand gallons in amounts from 3,500 to 16,000 to 38 cents per thousand on amounts over 500,000 gallons.

Utilities Plan for Future Needs

The Florida Power and Light Company supplies electrical energy to St. Augustine and St. Johns County. With its present generating capacity and transmission facilities, plus expansions under way and planned, the utility is set to take care of present and anticipated needs.

Commenting on the attitude of FP&L, City Commissioner Merrill E. Gilmer said the company is

"most cooperative" in supplying the needs of new or expanding industry and stands ready to put in special additional facilities, such as substations, whenever such additions may be required.

The company will supply current in single or three-phase, 60 cycles and at any available standard voltage. Rates are competitive with those in other areas of the state.

Also of help to residential, commercial and industrial users will be the natural gas service that soon will be extended to this area. Work has been completed by the Houston Gas and Oil Corporation on a natural gas pipeline which extends for 1,461 miles through Florida, from Milton in the northwest area to Cutler on the southeast coast.

Service from the main line will be available through lateral lines, one or more of which will be extended into St. Augustine.

Manufactured gas has been available here for some time, and there are about 2,000 customers connected to the present system. It is expected that the number will be greatly expanded with the advent of natural gas here.

"We feel," Commissioner Gilmer said, "that our having natural gas available will constitute another important plus factor in making the city and county more attractive to industry."

School System Being Expanded and Improved

One of the the most attractive new buildings in St. Augustine is the big high school which was completed just in time for the 1959-60 school term. It will accomodate 2,000 students. Also recently completed are two new elementary schools.

These new projects were part of the $2.9 million program of improvement in the St. Johns County school system, and they reflect the over-all pattern of growth in community services here.

In the public school system altogether there are eight schools for white children and five for Negroes. St. Joseph Academy here is a boarding school for girls but is co-ed for day students.

The only college here is for Negro students, but the St. Johns River Junior College is at Palatka just 30 miles away.

The Florida State School for the Deaf and Blind, which we mentioned earlier as a special asset here, has an enrollment of some 600 students. This institution trains their students in several skills and trades. These include printing and linotype and offset work, shoe repair, cleaning and pressing, upholstering, woodworking, cooking, dressmaking, lathe and metal work, chair caning, arts and crafts and barbering.

The St. Augustine High School offers a well-rounded program of industrial arts, as well as a full complement of academic subjects. Of interest to industry, too, is the fact that St. Joseph Academy offers an excellent program of industrial drafting for both boys and girls.

Colleges and Universities located near St. Augustine and St. Johns County include the University of Florida at Gainesville, 70 miles; Florida State University, Tallahassee, 200 miles; Jacksonville Junior College, and Jacksonville College of Music, 31 miles; Stetson University, Deland, 63 miles, and Florida Southern, Lakeland, 168 miles.

Backing up the strong educational background of the area are the St. Augustine Public Library, the St. Augustine Historical Society Library, and the Webb Memorial Library which has one of the finest collections in existence of research books on Florida and St. Augustine history.

Potatoes, Cabbage Leading Crops

An important part of the economy of St. Augustine and St. Johns County is agriculture, and there are some 25,000 acres of farm land in the area.

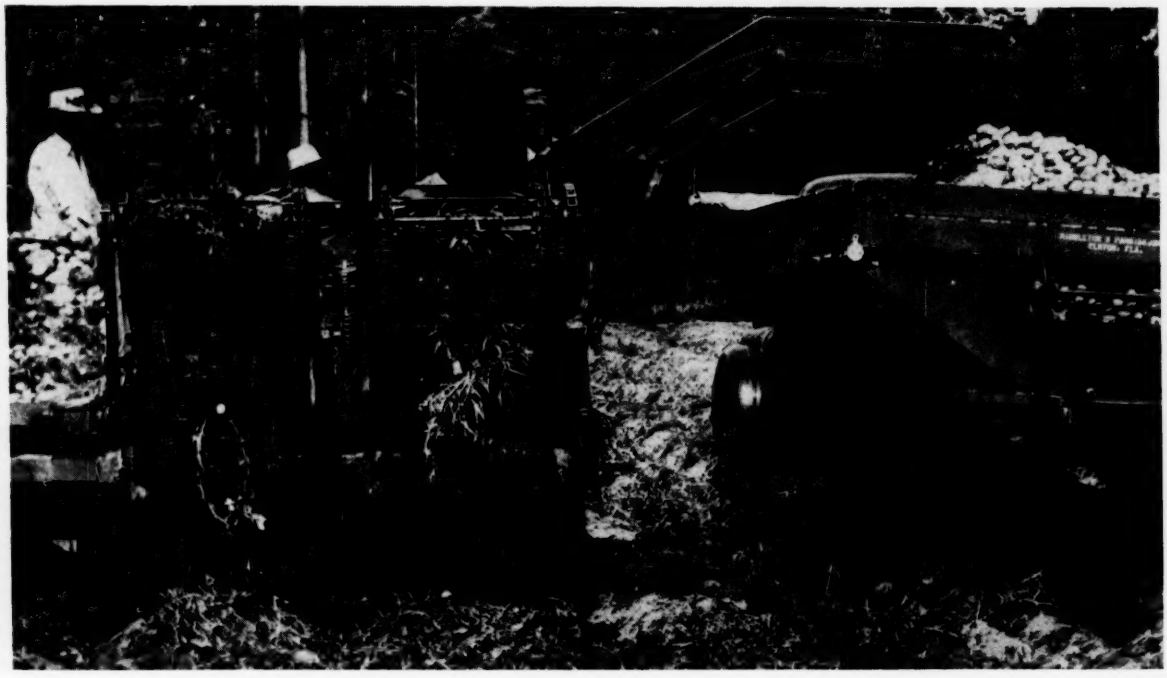
The county leads all other areas in Florida in the production of potatoes. In an average good crop year, with around 14,200 acres in production, the output is some 300 bushels to the acre, and gross income to farmers from potatoes is in excess of $3.7 million annually.

Another principal crop in the county is cabbage, and yields of from 20 to 30 tons of this vegetable per acre are not unusual. In a typical year, receipts from cabbage amount to around $1.2 million.

Forestry also provides the basis for enterprises bringing in substantial returns to the area. Forest products produced in St. Johns include pulpwood, pine and hardwood lumber, while turpentine and naval stores bring in many thousands of dollars to farmers in this area.

A company here which utilizes forest resources in this area, as well is in surrounding areas, is Bond-Howell Lumber Company which was founded in 1912 and lays claim to being the oldest lumber firm in Florida. Headquarters are in Jacksonville.

Norman Hailey, manager of the company's St. Augustine operation, told us that this area "needs industry to help balance the economy," and he added the opinion — in line with other business men we talked with — that, "During the past few years opinion has changed here, and I think the citizens will give full cooperation in helping to bring in new industry and in welcoming new peo-



Agriculture constitutes an important part of the economy of St. Johns County, the two leading crops being potatoes and cabbage. Potato gathering has been highly mechanized, and the yield averages 300 bushels to the acre. St. Johns County leads all other areas in Florida in production of potatoes.

ple to the community. We are, I definitely believe, making headway."

He expressed the opinion, too, that there are opportunities open for the development of additional industry here oriented toward agricultural products.

Being rapidly developed in quality are the cattle herds in the county. The Brahma breed is very popular among cattlemen, but there are also many other leading beef breeds raised in St. Johns.

The progress that has been made in cattle raising here may be seen in the fact that there were only 1,000 acres of improved pastures in the county 10 years ago, as compared with 7,000 acres today.

Interesting is the fact that not only does the county produce from its land things to eat but also flowers in large commercial quantities. In this category gladioli production is also an important item in the economy. The return per acre in a recent year amounted to approximately 2,000 dozen, bringing in an income of around $900,000 for the total crop.

Extensive and Efficient Community Services

In addition to the factors we have already noted, St. Augustine has a broad array of community services and amenities that make it an unusually pleasant place for both work and leisure activities.

You are assured, for example, of excellent fire and police protection, as the Fire and Police Departments here are rated among the best in the state.

The St. Augustine Fire Department personnel includes a chief, assistant chief and 20 regular firemen. Equipment consists of four pump trucks and a 55-foot aerial ladder truck, plus all related equipment.

As a result of the efficiency of this department, and the low fire loss rate, the city is rated NBU 4, which is the lowest rating for a city of corresponding population rating in Florida.

The police department is made up of 28 men, including the chief. There are 20 uniformed patrolmen, five members of the traffic department, and two plain-clothes detectives. The department has four patrol cars and four motorcycles, all radio equipped.

Supplementing the regular force is a 25-member Reserve Police Force, with uniforms and badges supplied by the city, which is utilized in cases of emergency, handling large crowds or heavy traffic.

Another important part of the police protection is the scientific crime detection unit, with photographic equipment and fingerprinting processes

The Ponce de Leon Hotel in St. Augustine is the first and most luxurious of the hotels built by the late Henry M. Flagler, wealthy industrialist who was a leader in the early development of Florida. The hotel was designed in the style of the Spanish Renaissance and was opened for business on January 10, 1888. It is open for guests during the winter season, December 30 through April 15.

being employed in crime prevention and detection.

For your health protection, St. Augustine has two hospitals, with a total of around 200 beds and 30 bassinets, and there are 29 doctors and eight dentists serving the area.

To take care of visitors there are 19 hotels which have a total of 1,247 rooms, and 108 motor courts with an aggregate of 1,780 rooms. Further, there are 57 apartments, totaling 1,316 rooms, and 71 rooming houses which provide 643 rooms altogether.

The "good eating places" referred to by Jim Alexander range from the ultramodern to candlelighted patios, full of charm, in the Old Spanish Quarter. The total number of restaurants in the county is 191, with a seating capacity of 7,095.

Southern Bell Telephone and Telegraph Company provides phone service for the city and county. Recent figures showed nearly 9,000 phone connections in the area, as compared to a little more than 5,000 in 1950, and the company has an expansion program under way to provide for future needs.

There are two local radio stations serving the area, one a CBS network affiliate, and good television reception is gotten here from two commercial stations and one educational station at Jacksonville.

Local and national coverage of news is provided by The St. Augustine Record which has a circulation of approximately 6,500, and additional local coverage is given by The Hastings Journal, a weekly. The Florida Times-Union and the Jacksonville Journal also are widely read here.

The strong religious background here is reflected in the 13 major churches representing all principal denominations, and St. Augustine also has a strong complement of civic, fraternal and social organizations.

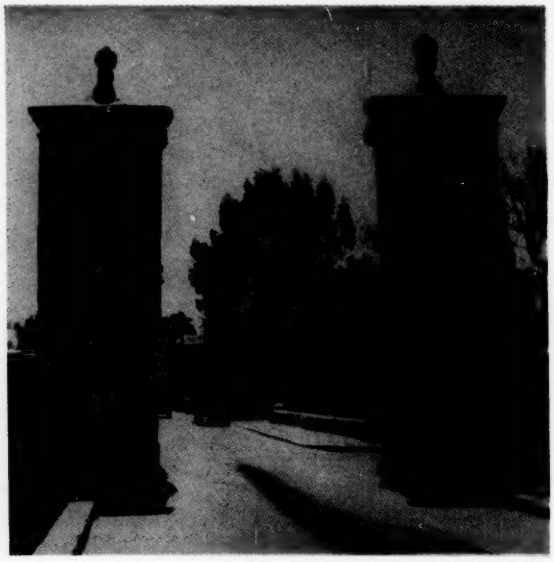
Banking services are provided by three commercial banks, and the city also has the Security Federal Savings and Loan Association.

Historic Charm in a Pleasant Climate

The climate in this area is generally mild, both summer and winter, the mean temperature between May and October being 77.7 degrees, while the average is 61.3 degrees between November and April.

The average dates of the first freezing temperatures in the fall and the last in the spring are December 18 and February 5, respectively. About half the annual precipitation in the area occurs in the four-month period from the middle of June to

The St. Augustine area can lay claim to one of the finest and widest beaches in the world, this stretch being part of 18 miles of beach area which is immediately accessible to residents here. St. Augustine Beach was recently incorporated as a community and has a commission form of government.



The old city gates, at St. George and Orange Streets, for many years guarded the drawbridge across the moat, over which St. Augustine was entered from the north. The coquina pylons attach to sections of the old city wall which once ran clear across the narrow peninsula.

the middle of October. Since this rain occurs as the result of generally brief thunderstorms, there is plenty of sunshine in between, and the rain also helps to lower summer temperatures.

This is the climate that the early Spanish explorers found to be so attractive. It was back in 1513 that Ponce de Leon, with a fleet of three ships, sailed into the harbor that was later to bear the name St. Augustine. Following his landing here on April 3, 1513, Ponce de Leon named the area Florida, meaning "land of flowers."

Failing to find the "fountain of youth" that he so ardently sought, the Spanish leader and his men sailed away and never returned. More than a half a century later, in 1564, a French expedition landed here and subsequently sailed to the mouth of the St. Johns River, 40 miles to the north, and established Fort Caroline.

The following year, on September 8, 1565, Don Pedro Menendez de Aviles landed here and took possession of the harbor and surounding land in the name of Spain. He named it St. Augustine because he had first sighted Florida on August 28, St. Augustine's Day.

Thus was founded the city that may be accurately called "the oldest permanent white settlement in the United States."

Many turbulent decades followed, during which St. Augustine suffered damage repeatedly in battles between the English and Spaniards, as well as from attacks by the Indians, but the city remained a continuous entity and was a flourishing community when the American flag was raised over it on July 10, 1821.

Many examples of old architecture have been preserved here and these, along with the museums, the beautiful flowers and foliage, the wide beaches and other attractions, have made St. Augustine one of the nation's top tourist meccas.

Besides all this, which helps make the city an unusually cultural and pleasant place for you and your employees to live, St. Johns County offers one of the most varied and well-rounded areas for recreation in the entire Southeast.

Immediately accessible, for instance, are 18 miles of beaches 600 feet wide at low tide. These offer the world's widest beach driving area and provide for excellent swimming and surf fishing, with a summertime water temperature averaging 78 degrees.

We took a long drive on this beach, south of the city, and were very impressed that much of it looks as untouched by man as it must have appeared when the Spaniards first landed here. The white sand is hard-packed, making for easy driving, and the roaring surf of the mighty Atlantic is fascinating to watch as well as to cavort in.

The area known as St. Augustine Beach, adjoining the city, was recently incorporated and has a commission form of government. The community has a fishing pier, ample motels, restaurants, taverns and service stations. The City of St. Augu-

stine furnishes fire and water protection.

Ponte Vedra Beach is another resort area in St. Johns County, north of the city, consisting chiefly of private homes and private beaches.

Altogether, including the coast area both north and south of the city, the citizens of and visitors to St. Augustine have access to about 50 miles of beach.

For fresh water fishing, many streams and the big St. Johns River are but a short driving distance, offering some of the finest black bass and bream fishing to be found anywhere. Excellent boating facilities, with numerous boat ramps already in use and others being constructed, may be found on the Inland Waterway and other areas.

Water skiing is a very popular sport, as well as sailing, and the St. Augustine Rotary Club sponsors the pram sailing fleet for youngsters every weekend.

Anastasia Island State Park is just one of the popular recreational areas being developed in this area, and it offers, in addition to complete picnic and camping facilities, swimming, boating and fishing.

Employed by the City of St. Augustine is a full-time recreational director with a well-rounded recreational program. Included is a Teen Town, high school athletics, tennis courts, three theaters — one of which is indoor and two drive-in — a Little Theater group, an art club, midget baseball, football and basketball, a private country club with a fine golf course, an olympic-size swimming pool at the local YMCA, a harness race track a short distance from the north of town, and many other varied forms of relaxation, excercise and recreation.

It may be seen, therefore, that historic St. Augustine is also a modern city, the relics of yesterday forming a backdrop for things that are new and progressive. You will see this quickly in the improvements that have been made along the impressive Bayfront, in the wide streets and beautiful park areas there.

A feature of this area, just across from the Ripley Believe-It-or-Not Museum, is the handsome building occuppied by the Chamber and which is an information center for visitors. Just added here is a huge new paved parking area.

Construction also is under way on making U.S. Highway 1 four lanes through the city, and this will greatly facilitate access and egress, as well as the flow of traffic here.

New and modern housing projects also are continuously being developed, and very important for the future are the plans being worked on for a new sewerage disposal system.

Planning for an Industrial Park

One of the outstanding positive signs of the determination here to attract new industrial and commercial payrolls is the program to develop the St. Augustine-St. Johns County Industrial Park.

The area for the park is flat, wooded land, located adjacent to the main line of the Florida East Coast Railroad. An access road already has been built through the area.

Currently the industrial park tract has 50 acres of land, but the city-county Industrial Corporation has options on 200 acres of additional contiguous property.

Civic leader R. E. Greggs, of Matanzas Furniture Company, is president of the Industrial Corporation and is an aggressive and enthusiastic supporter of the program. "The outlook," he declared succinctly, "is certainly favorable."

Howard Kinsey, vice chairman of the Industrial Committee of the St. Augustine-St. Johns County Chamber, stressed that in addition to rail and road transportation, water and power facilities are already in the park and can be expanded quickly to meet the need of tenants.

"I believe," he asserted, "that we can maintain our charm and traditions here while at the same time getting the benefits of new blood in the form of more business and industry." He added that he thought this area offers particularly good opportunities for service and distributive organizations and said specifically that it is an excellent spot for the location of insurance offices.

Concerning the industrial park, he said the corporation is prepared to build facilities, to the specifications of tenants, for lease or purchase. "Necessary financing for responsible prospects can be arranged whenever the need arises."

Mr. Kinsey pointed out, too, that the park is close to a suburban area where 300 homes are being constructed in a new housing development program.

More than $200,000 in Funds Raised

How well the campaign to develop the park is succeeding may be seen in the fact that a total of $200,100 in pledges was raised in a one-day drive, on January 28, to be used in attracting industry to the area.

The pledge drive was started with a 7:30 a.m. kickoff breakfast, attended by 45 local leaders, who pledged a total of $30,800 before setting out with their prospect cards.

Standing in the middle of the road that has been cut through the St. Augustine-St. Johns County new Industrial Park are (left to right), Vincent J. Amato and John D. Bailey, financial co-chairmen of the Chamber of Commerce; Robert C. Greggs, president of the Industrial Corporation which is developing the park, and Fred Bozard, chairman of the Chamber's Industrial Committee.

The general feeling here is that the success of the drive will enable the Industrial Development Corporation to have more attractive financial backing in getting prospective industrialists to come to the area. It also is a very tangible demonstration of the community's healthy attitude toward new industry.

It was explained that when a prospect is definitely considering the St. Augustine-St. Johns County area, and is interested in getting financing, the pledgers will be consulted on the desirability of the industry and will be given the opportunity of placing their pledge money on the enterprise of their choice.

Co-chairmen of the special fund-raising drive were Vincent Amato and John Bailey who were among the leaders we quoted earlier in this report.

An Enthusiastic I. D. Team

Heading up the Chamber's Industrial Committee as chairman is Fred H. Bozard, Jr., whose business here is Bozard Ford Company.

The committee, he pointed out, is a selling team made up of a cross section of city and county leaders. Their job is to promote the industrial and commercial possibilities here in every way they can.

"In my opinion," he declared, "St. Augustine is a two-way city. Although the tourist industry is a major factor in the economy, industry is also needed. We have all the facilities required to attract new enterprises, and it is up to the community to take advantage of them and sell the city."

The full-time, hard-hitting St. Augustine-St. Johns County Chamber of Commerce team that is promoting the area is led by H. B. Chitty, executive vice president of the chamber, and his assistant, Julian Fant.

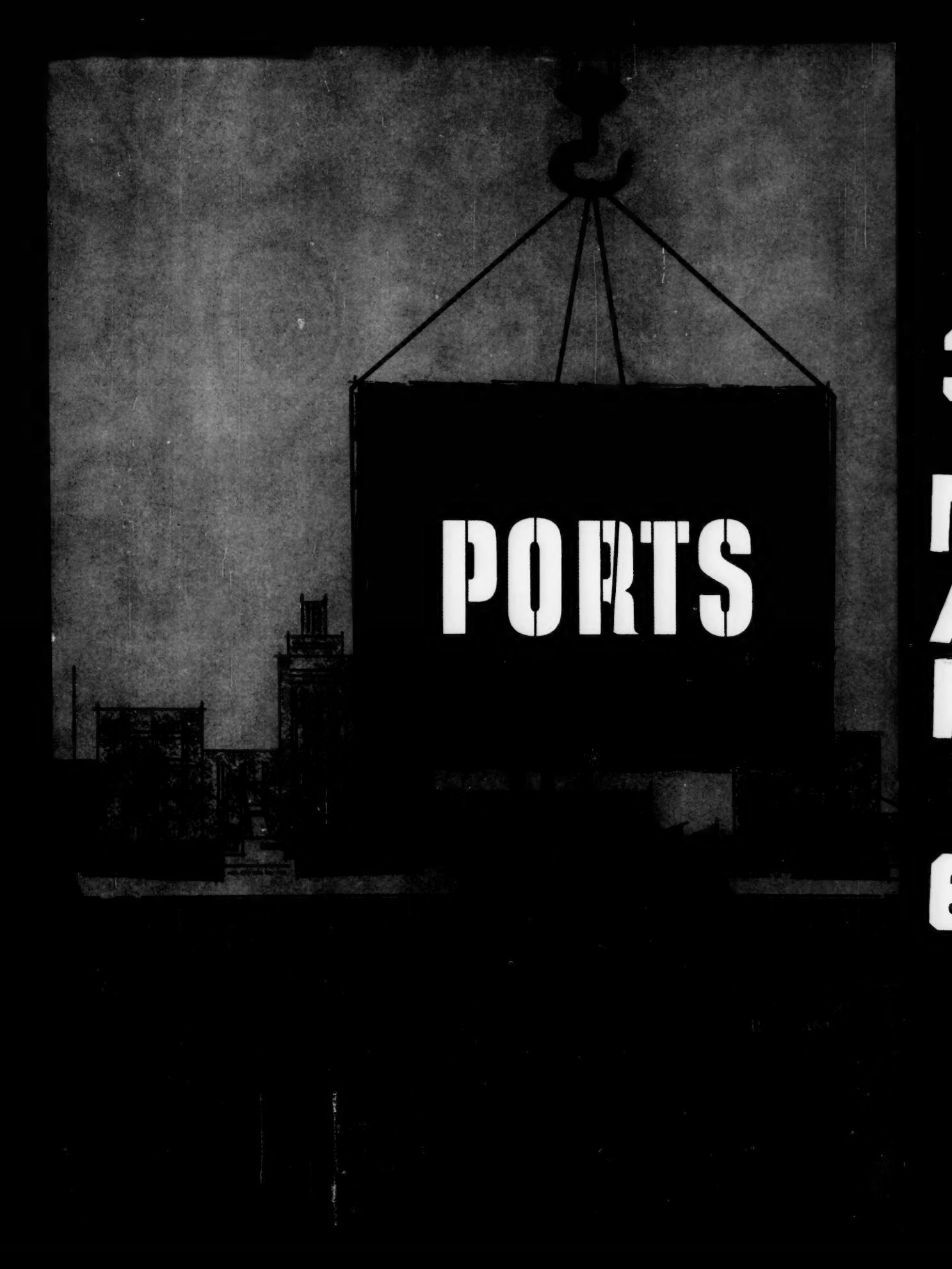
They are armed with beautiful brochures about the area, and facts and statistics to tell any prospective plant builders about what is offered here, and they stand ready to give personal attention and aid to prospects.

Their job is made even more effective, of course, through the support of Mayor Mickler, Mr. Bozard, Mr. Greggs, Mr. Kinsey, Mr. Clark, Mr. Beech and the other leaders whose views we have quoted.

You may be assured, therefore, of a warm welcome in St. Augustine, and there is a strong possibility that you will find in this city of pleasant living just what you want for the location of your particular enterprise.

I. D. AREA SERIES

The accompanying survey of site selection and plant location factors in the St. Augustine and St. Johns County area of Florida was conducted by the editorial staff of Industrial Development under sponsorship of the St. Augustine-St. Johns County Chamber of Commerce. Reprints of the study are available from H. B. Chitty, executive vice president of the Chamber, St. Augustine, Florida.


PORTS

PORTS

Ports are moving boldly onto the industrial development scene and whether or not a port site is a necessity for you, it may be worthwhile to you to investigate them because of several factors.

Foremost is the fact that ports in general are more industry-conscious than ever before. Second, expansion and improvement programs have in the main resulted in better developed areas. Third, ports today are more functionally and efficiently organized to help you locate specific

A 'NEW DEPARTURE' IN

By RON HILL

"Industrial development has become a strong factor in seaport administration over the last fifteen years. The ports have learned, by bitter experience, that non-contiguous general cargo originating or destined to interior points can be fickle traffic, subject to intense competition and also subject to regulatory decisions of the ICC.

"A good many ports in recent years have been devoting attention to 'captive cargo', which means attempting to locate producing industry in the immediate port area. Port effort along these lines ranges from close cooperation with the area's industry — interested organizations (including Chambers of Commerce, banks, railroads and industrial development boards), to highly developed 'industrial park' tracts which are the direct responsibility of the port agency. Basically, such tracts are port-owned and leased to industry on long term arrangements.

"The most recent trend is in the construction of general or special purpose buildings by some of the port agencies for long-term lease to industry. This marks a new departure in port development."

Paul A. Amundsen
Executive Director
American Association of Port Authorities

sites that more closely fit your needs.

"Industrial development is a 'natural' in port areas," according to Dudley W. Frost, executive director of the Port of Oakland and a past president of the American Association of Port Authorities, "Ports are the centers of the nation's transportation system, which is so important to the distribution of products, both domestically and in the overseas markets. Ports themselves are benefited by the location of industries in their own areas since nearby industry provides port business, payrolls and commerce which benefit the entire area."

What are some of the outstanding features of ports? What special tools or services do ports offer that are of importance to you? What are some of the key factors that you should analyze when investigating ports? What is the outlook for the future of ports regarding industrial development?

The answers to these questions and other questions pertaining to ports are the primary purpose of this report.

The first thing that is obvious in surveying ports is that they are a *big business*. Look at the overall ports picture for a moment. The waterborne commerce of the United

States in 1958 amount to an astronomical 1,004,500,000 tons! When divided into foreign and domestic commerce, it is surprising to find that domestic commerce accounted for almost 70 percent, or 695.6 million tons and foreign traffic only 308.9 million tons.

A dollar value of total U.S. waterborne commerce is not available, but the value of the foreign waterborne commerce alone was $21.6 billion in 1958. Approximate the value of domestic commerce at a conservative $15 billion tons, add it up, and you can see that the U.S. ports are handling goods and materials valued at about $35 billion each year.

Now, let's look at how this big business of ports fits into the big business of industrial development.

You will be glad to learn that an equally impressive feature about ports is the quality and amount of specific, detailed and *relative* information that is provided by most ports upon request.

Naturally, information pertinent to shipping, handling, warehousing and distribution is readily available. This data includes such items as channel depth and width; number of piers; number of deep-sea berths; tonnage capacity; handling equipment at each berth; cargo distribution space; rail, air and truck facilities; warehouse space and special services available.

Of equal importance to you is the information that is available on the factors that influence plant location decisions. There are over 800 specific factors grouped into 21 broad subjects and three general categories influencing plant location. (See "Your 1960 Outline for Expansion," Oct., 1959, INDUSTRIAL DEVELOPMENT AND MANUFACTURERS RECORD.) Data pertaining to these subjects is compiled and published by many ports.

For example, the Port of Kennewick, Wash., has published a brochure that discusses, in addition to port geography and facilities, topics such as markets, labor, production materials, transportation, taxes, electric power, industrial fuels, industrial water, community resources and living conditions, plant sites and nearby industries. In addition, this port's brochure outlines in detail shipping rates and delivery time to eight northwestern states.

The State of Wisconsin publishes information on all 14 of its port cities, giving specifics such as the amount of commerce handled, inland transportation facilities, port facilities, U.S. Government services, waterfront industrial sites and port and industrial information.

As a forerunner to its expansion and improvement program for its ports, the State of Connecticut published a good-sized volume titled "An Economic and Engineering Survey of all Navigable Waters in the State of Connecticut." Information of this type can be invaluable in port and site planning.

If you have unusual problems in your business, you can expect complete cooperation and assistance from port people in finding solutions to your problems. In fact, some ports have built special facilities or provided unusual sites for businesses confronted with peculiar conditions.

Industrial Molasses Corporation was aided by the Toledo-Lucas County Port Authority, Toledo, Ohio, in locating a site that would be suitable for a complete facility for handling and warehousing 6.5 million gallons of molasses or other liquids. The new site is located on the Port Authority's Presque Isle Site that was planned and developed to attract new industry to the port.

The Port of Portsmouth, N. H., helped locate for the Simplex Wire and Cable Company a deep-water site where submarine cable could be manufactured and loaded directly into cable ships from the manufacturing plant. In addition, the New Hampshire State Port Authority was recently authorized by the state legislature a bond issue of one million dollars which may encompass a free foreign trade zone, dock facilities and equipment for handling sea-land van transport equipment.

INDUSTRIAL DEVELOPMENT

Many ports are doing extensive work in providing facilities that certain industries require as a part of their normal operations. The Port of Corpus Christi recently added to its port facilities a new $1.6 million bulk materials handling dock. The dock's mobile tower can unload 1,000 tons of bulk materials per hour and load the material directly into railroad gondola cars or into trucks.

This type dock is very useful for many kinds of steel industry and newcomers will join two major metals manufactories already at Corpus Christi: Reynolds Metals Company and the American Smelting and Refining Company.

To you, available land is a top-priority factor in choosing a new plant site or expanding existing facilities. Most areas are restricted by laws, zoning regulations and the wishes of land-owners who may not *want* to sell their land.

One solution to this situation is found in Oregon ports. Although it is unlawful for other municipalities to do so, the ports of Oregon are permitted by law to "acquire or purchase, by condemnation or other lawful means, such land as it may deem necessary and lease and sell such lands." This law makes it

possible for industry to acquire suitable expansion space around the ports of Oregon without being forced to move away from the main port site.

One small but expanding port that is in position to take advantage of this unique situation is the Port of Umatilla, McNary, Oregon. Last year this port purchased 231 acres of land located on the Columbia River in the deep-water pool behind the McNary Dam and is planning to obtain 700 acres more in the near future. This action by the Port of Umatilla is only one phase of its industrial development program that offers sites of various sizes with waterfront or inland locations. Incidentally, this port has one feature that is a necessity to many industries — an unlimited fresh water supply.

Land is also abundant in and around the Port of Savannah, too. A recent purchase of a 388-acre tract with deep-water frontage on the Savannah River brings the total available industrial property to over 3,000 acres, much of which is located on deep water.

The Port of Galveston has a private development corporation that offers over 4,000 acres of land area for industrial use — all on an island. This is not as far-fetched as it may seem, for Pelican Island, the land site is located on the Galveston Channel just across from the Port of Galveston and is adjacent to the Intra-coastal Canal the gateway to inland waterway ports.

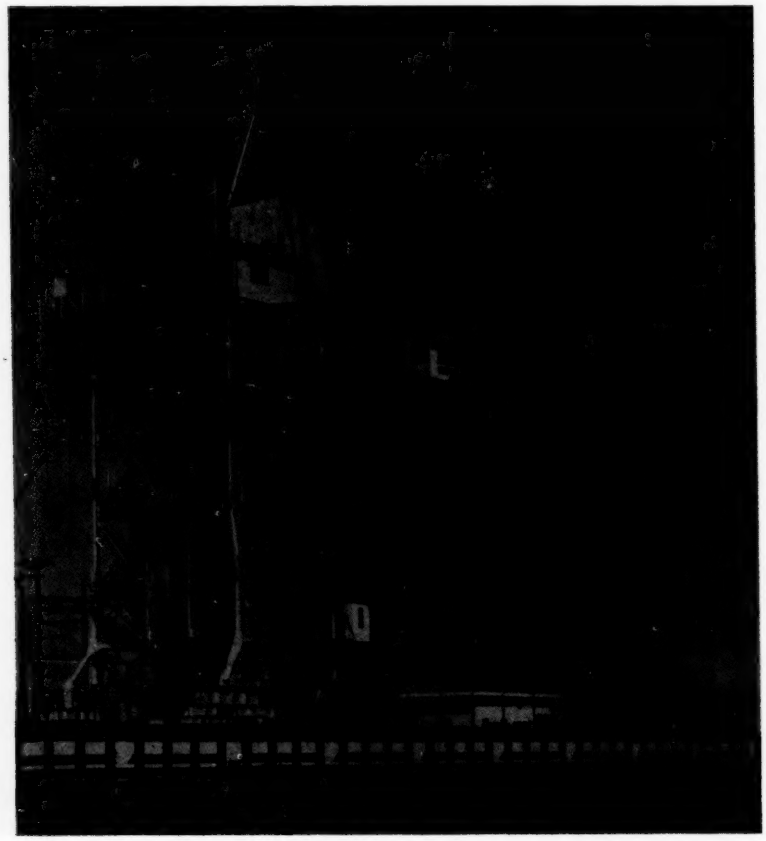
In addition to the industrial sites the Pelican Island Development Corporation operates the island area and provides deep-water frontage and general facilities found in a major port.

Another outstanding example of port industrial districts is the new Bayou Casotte Industrial Area of the Jackson County Port Authority at Pascagoula, Miss.

Located in the center of the Gulf Coast area, the Bayou Casotte Industrial Area is a 7,000-acre development complete with most port and industrial facilities. It has already attracted two large manufacturing firms, Coastal Chemical Corporation and H. K. Porter Company. These concerns are now building plants valued at $7.5 and $8 million, respectively.

A port-centered industrial district that has a prime location on the Great Lakes is the Calumet Industrial District that is located on Lake Calumet which opens on Calumet River which in turn opens on Lake Michigan.

In an area governed by the Chicago Regional Port District, this park will benefit from the planned construction of 40,000 lineal feet of wharves — enough to dock 100 ocean ships at the same time. A center of sea, air, rail and truck lines, this district emphasizes complete services to industry.



Choice of a port plant site may depend on special equipment if particular types of materials are used in your industry. An imposing example of special equipment found in many ports is the Port of Corpus Christi's new bulk materials handling dock that will unload 1,000 tons of ore or similar bulk materials per hour.

Industrial Parks

On the West Coast, industrial districts are mushrooming around the major and minor ports, but it will suffice to mention two exemplary models. In the northwest section, the Port of Portland, Ore., has unified under its authority three industrial areas, two of which are primarily waterfront sites and the third is an airport site.

The waterfront industrial districts are Swan Island Industrial Park, a 650-acre, medium industry, city-center location and Ramsey Lake Development, a 300-acre site that can accommodate heavy industry that requires separation from residential areas. These parks are the result of a carefully detailed series of master plans made by the Port of Portland Commission, under the direction of president Dennis J. Lindsay.

Formerly a widely-known maritime attorney, Lindsay explained the position of the Port of Portland Commission in regards to the progressive operation of the port by commenting, "As a state-created municipal corporation charged with the management of riverside and airport properties, the Port of Port-

land Commission considers it a duty to take a leading role in hastening the industrial development of the Port of Portland and the surrounding area."

Research played an important part in the planning and the development of another West Coast industrial park at the Port of Oakland, Calif. The Port of Oakland Industrial Park is a direct result of extensive study made by the Stanford Research Institute and will eventually comprise 1,000 acres well-suited for light industry, warehousing and trucking and, of course, deep-water shipping.

A long-range project, the Port of Oakland Industrial Park may include a motor hotel with swimming and banquet facilities to service industrial firms. This is an indication of the thoroughness and modernness of the planning for this park.

If your primary concern is location in or near a port that accounts for a large volume of traffic, or if the main factor is the extensiveness of port facilities, then you will take another "tack" to find the right site.

When the above factors are important, the following ports would have to be considered: New York, Philadelphia, Baltimore and Norfolk on the East Coast; Los Angeles and Richmond on the West Coast; Houston and New Orleans on the Gulf Coast and Chicago and Duluth-Superior on the Great Lakes.

A check of the Bureau of Census foreign trade figures and the Department of the Army Corps of Engineers statistics on total waterborne commerce in the U.S. reveal that the above ports are among the leaders in total tonnage in their areas. This fact leads to the apparent conclusion that these ports have the most complete facilities in their areas.

Trade Factors

However, if you want to be located near a foreign trade center, you'll need to check a somewhat different line-up, except for the East Coast. On the West Coast foreign trade leaders are Los Angeles and Long Beach; on the Gulf Coast, New Orleans, Houston and Mobile are the top three; on the Great Lakes, Toledo and Duluth-Superior are front-runners.

Over 8,000 acres of land will be made available for industrial expansion by this new tidewater channel now being dredged from the Port of New Orleans to the Gulf Coast. The channel will cut 40 miles off the Mississippi River distance between the port and the open sea.

Change the major point of interest and you change the list of ports to be investigated. If you are interested in a port that does a large amount of coastwise shipping (from one U.S. port to another over an ocean or the Gulf of Mexico), then you will want to check New York, Philadelphia and Boston on the East Coast; Los Angeles and Richmond on the West Coast; Houston, Beaumont and Port Arthur on the Gulf Coast and you'll find that there is very little coastwise traffic on the Great Lakes.

Internal traffic may be your dominant interest and another group of ports would head the list for close analysis. Heavy internal traffic (between ports or landings on the inland waterways), goes through Clairton-Elizabeth, Pennsylvania, New York and Philadelphia on the East Coast. West Coast leaders are Seattle and Richmond. New Orleans, Houston and Baton Rouge lead the Gulf Coast. The Great Lakes area is topped by Chicago and Cincinnati.

Some of the major inland ports that deal, of course, almost exclusively in internal traffic are: Aliquippa-Rochester, Pennsylvania, Huntington, West Virginia, Pittsburgh, St. Louis, and Memphis.

One of the inland ports that is making rapid progress in the area of industrial development is Memphis. Under the sponsorship of the Memphis and Shelby County Port Commission, a $50 million harbor and industrial area was begun in 1948 and is now partially completed.

Presently available are 960 acres on Presidents Island affording sites of various sizes on a lease or purchase basis. Eventually, a 6,800-acre industrial development on the mainland will be opened to industry.

A small but growing inland port is the Port of Augusta, Georgia, located on the Savannah River. This port has the advantage of being the most distant inland city along the Eastern Seaboard. Port improvements include a federal channel improvement program that will assure a nine-foot channel the year-round and an additional $100 million federal program in the upper reaches of the Savannah River.

The Augusta Port Authority has deeded the Georgia Port Authority 100 acres of riverside land on which state docks will be constructed to tie-in with the Savannah Seaport Terminal. The port and the river already have attracted Continental Can Company, which will build a $45 million installation here.

"What is your port doing to prepare for the future, say 10 years from now?" This is a question that you should ask of port management because the welfare of your plant in any port is closely dependent on the progression of that port. Many progressive ports can supply you with

TOTAL TONNAGE FOR TOP TEN U. S. PORTS:*	TONS** (2,000 pounds)
1. Port of New York, N.Y., and N. J.	145,531,300
2. Houston, Tex.	55,258,046
3. New Orleans, La.	51,711,671
4. Philadelphia Harbor, Pa.	46,663,736
5. Baltimore Harbor and Channels, Md.	41,703,370
6. Norfolk Harbor, Va.	38,662,972
7. Port of Chicago, Ill.	36,614,376
8. Duluth-Superior Harbor, Minn. & Wis.	34,487,620
9. Toledo, Ohio	28,742,085
10. Beaumont, Tex.	24,529,907

*Source: "Waterborne Commerce of the U.S., 1958," published by the Department of the Army Corps of Engineers.
**Tonnage includes foreign trade, both imports and exports, and domestic traffic, incuding coastwise, internal, interport and local and, in the Great Lakes, lakewise.

FOREIGN TRADE FOR TOP TEN U. S. PORTS:*	TONS** (2,000 pounds)
1. New York, N.Y., and N. J.	41,474,764
2. Baltimore Harbor and Channels, Md.	25,068,019
3. Philadelphia Harbor, Pa.	23,855,165
4. Norfolk Harbor, Va.	23,136,619
5. Port of Newport News, Va.	17,652,183
6. New Orleans, La.	12,739,313
7. Portland Harbor, Me.	12,246,316
8. Houston, Tex.	9,439,789
9. Mobile Harbor, Ala.	8,094,009
10. Paulsboro, N. J. and vicinity	6,769,549

*Source: "Waterborne Commerce of the U.S., 1958," published by the Department of the Army Corps of Engineers.
**Includes both import and export tonnage.

INTERNATIONAL TRAFFIC FOR TOP TEN U. S. PORTS:*	TONS** (2,000 pounds)
1. New Orleans, La.	21,904,245
2. Port of Chicago, Ill.	15,546,522
3. Huntington, W. Va.	12,793 032
4. Houston, Tex.	10,567,650
5. Clairton-Elizabeth, Pa.	8,542,713
6. Baton Rouge, La.	8,431,965
7. Port of New York, N.Y., and N.J.	8,358,215
8. Philadelphia Harbor, Pa.	7,458,792
9. Cincinnati, Ohio	7,449,244
10. Pittsburgh, Pa.	7,249,220

*Source: "Waterborne Commerce of the U.S., 1958," published by the Department of the Army Corps of Engineers.
**Includes only that traffic between ports or landings wherein the entire movement takes place over inland waterways, except that those movements involving carriage on both inland waterways and waters of the Great Lakes system are also termed internal.

COASTWISE SHIPPING FOR TOP TEN U. S. PORTS:*	TONS** (2,000 pounds)
1. Port of New York, N.Y., and N. J.	52,809,522
2. Houston, Tex.	26,625,498
3. Beaumont, Tex.	18,305,329
4. Port Arthur, Tex.	17,917,578
5. Philadelphia Harbor, Pa.	12,425,811
6. Port of Boston, Mass.	12,350,096
7. Los Angeles Harbor, Calif.	11,109,533
8. New Orleans, La.	10,726,516
9. Norfolk Harbor, Va.	9,552,964
10. Marcus Hook, Pa. and vicinity	9,269,299

*Source: "Waterborne Commerce of the U.S., 1958", published by the Department of the Army Corps of Engineers.
**Includes only that traffic receiving a carriage over an ocean or the Gulf of Mexico from one U.S. port to another.

TOP TEN U. S. WATERWAYS*	TONS (2,000 pounds)
1. Mississippi River Minneapolis, Minn. to Mouth of Passes (Net)	112,578,238
2. Upper Bay, New York Harbor, N. Y.	106,934,680
3. Delaware River Trenton, N. J. to the sea (Net)	99,844,047
4. New York and New Jersey Channels, N. Y., and N. J.	99,605,641
5. Lower Entrance Channels, New York Harbor, N. Y.	90,069,621
6. Detroit River, Michigan	87,878,763
7. St. Marys River, Michigan	79,588,107
8. St. Clair River, Michigan	77,436,861
9. Channels in Lake St. Clair, Michigan	76,661,223
10. St. Marys Falls Canal, Michigan	76,324.435

*Source: "Waterborne Commerce of the U.S., 1958", published by the Department of the Army Corps of Engineers.

an answer that is more than a guess because of prior planning, projection and preparation. Only three will be cited here.

An 11-year, $121-million expansion program marks the Port of New Orleans as a progressive ambitious port that already has an answer to the above question. The initial phase of this long-range program is a new tidewater channel that will cut about 40 miles off the 110 miles that separates New Orleans and the open sea.

New Orleans authorities announced that this new channel will make available for industrial construction over 8,000 acres of land that was previously undeveloped.

"The Port of New Orleans has a real gleam in its eye these days, just thinking about its industrial future," says James W. Martin, Director of Trade Development for the port, "Thousands of acres of new land are being opened up on deep water as work progresses on the port's new sea-level channel to the Gulf of Mexico, assuring new and greater stature for the Crescent City as a major industrial center."

The Port of San Francisco can be counted as one of the many ports that has done extensive projection-planning. One major project is reclamation of tideland areas that will create new industrial building sites along the waterfront. Work on this project is partly completed and continues. A total of 32 future projects are underway here.

Smaller in size, but not in completeness of planned programs is the Port of Tampa. Plans for future development, that will cost around $5 million, are so thorough that individual sites have been plotted for future industry with the approximate acreage each type of industry would possibly require.

State Authorities

If you are planning an expansion, you will find that information and recommendations on ports can be acquired easily through the state port authorities. State port authorities play a major role in fostering the development of the individual ports under their jurisdiction.

Activities of the state port authorities vary, of course, but the majority participate in programs dealing with port and harbor development, surveys, future planning, public relations, transportation coordination and industrial development. Fortunately for you, active and cooperative state port authorities are the rule rather than the exception, but we'll use only four examples due to space limitations.

A good illustration of the information available on industrial development activities of the states is the survey made by the Maine Port Authority. In 1958, this agency made a survey of 120 coastal communities in the state to determine what waterfront property was available for industry. Data of this type can save you a lot of time in narrowing down the large list of ports.

Operating under a complete modernization program, the South Carolina Port Authority recently built at the Port of Charleston an $800,000 plant and leased it back to Stein Hall Southern, Inc., on a self-amortizing basis. Projects of this type reveal the wide range of activities undertaken by the state authorities.

The Charleston plant, though, is only a part of a three-pronged effort that, using the words of authority member J. Willis Cantey, "has changed the face of the Charleston waterfront and put modern, $1.5 million dock-warehouse facilities at Georgetown and Port Royal."

Now launching a program seeking state legislation that would initiate a multi-million dollar plan of general cargo facilities expansion and improvement, the Virginia Port Authority is one of the leaders in industrial development activity.

Complete cooperation on behalf of the Virginia Port Authority has given impetus to the formation and success of four industrial parks and one leading development council in the Hampton Roads area. By publishing surveys and research materials, this authority helps the individual ports in the state factually and authoritatively prove their particular advantages as industrial site areas.

Another state port authority that cooperates in the publishing of survey material is the Georgia Port Authority. The Georgia authority also works in close cooperation with the Savannah District Authority in developing the Port of Savannah.

The Savannah District Authority is one of the authorities that work in a smaller region than do the state authorities and is recognized as one of the faster-developing authorities. The activities of this authority are explained by the executive secretary, W. H. McGowan:

"The Savannah District Authority is working constantly with industrial prospects and is able to furnish considerable detail on sites in the port area, detailed information on facilities in Savannah harbor, and specific information on various aspects of the Savannah economy as it relates to industrial and port development."

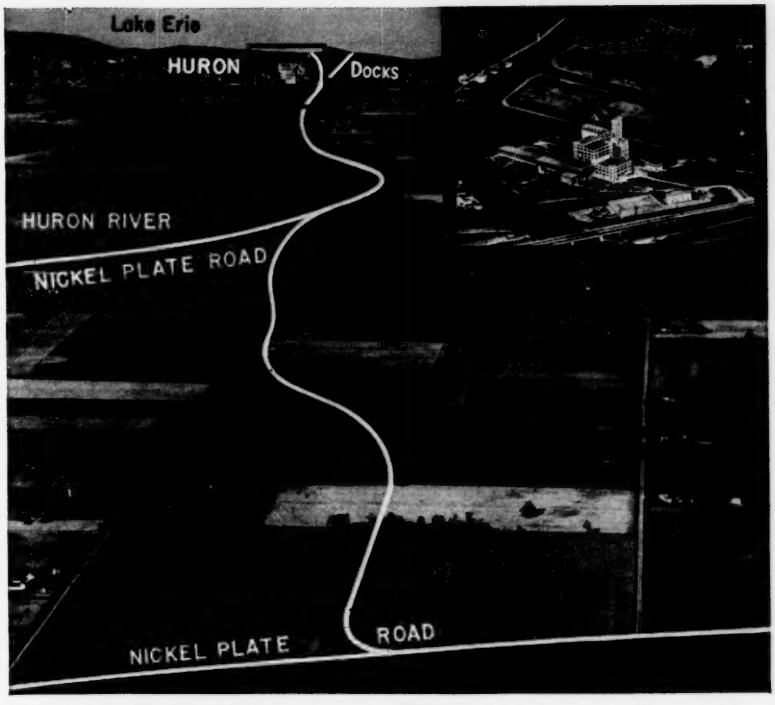
An unusual port authority, in that it works as a coordinating body for the ports of three states, is the Delaware River Port Authority. Its scope of interest extends into Delaware but it is primarily concerned with Pennsylvania and New Jersey ports.

The tonnage and foreign trade records of the ports under the Delaware River Port Authority speaks for its efficiency and effectiveness. Major ports under the authority are Philadelphia, Camden, Trenton, Paulsboro, New Jersey, Marcus Hook, Pennsylvania, and Wilmington, Delaware. These and other smaller ports on the Delaware River account for about one-fourth of the total import tonnage of the U.S.

If your new plant site requires a large amount of bulk cargo handling, then you will want to check on some of the leaders in this field. Baltimore and New York are two of the leaders on the East Coast; San Francisco and Richmond are among the foremost bulk handlers on the West Coast; Chicago, Toledo and Duluth-Superior are representative among the Great Lakes handlers of bulk cargo and the Gulf Coast has New Orleans and Houston as bulk cargo leaders.

To give you an idea of the type facilities used to handle bulk cargo, look at this partial list of facilities of the Port of Baltimore: Four large ore piers, three coal piers and three waterfront grain elevators with more than 13 million bushels total capacity. This listing does not include any of the general cargo piers.

On a smaller scale, the Port of



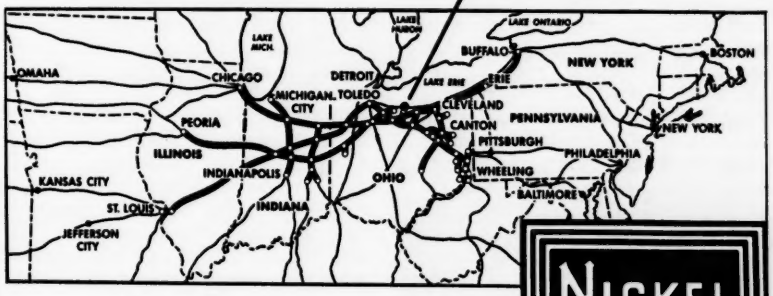
plant sites with PORT FACILITIES

Huron, Ohio, 58 miles west of Cleveland, 54 miles east of Toledo, offers a combination of fine port and rail facilities adjacent to hundreds of acres of land ideally suited to industrial development.

Its fine harbor includes coal and ore handling facilities and dockage for bulk handling of materials by self-unloaders. Both Lake Erie and the Huron River can be used for industrial water supply.

Modern utilities, adequate city water, good residential areas and excellent schools are here . . . as are all the other things that make for comfortable living and a natural industrial site.

Additional detailed information will be furnished by the Industrial Development Department, Nickel Plate Road, Terminal Tower, Cleveland 1, Ohio.



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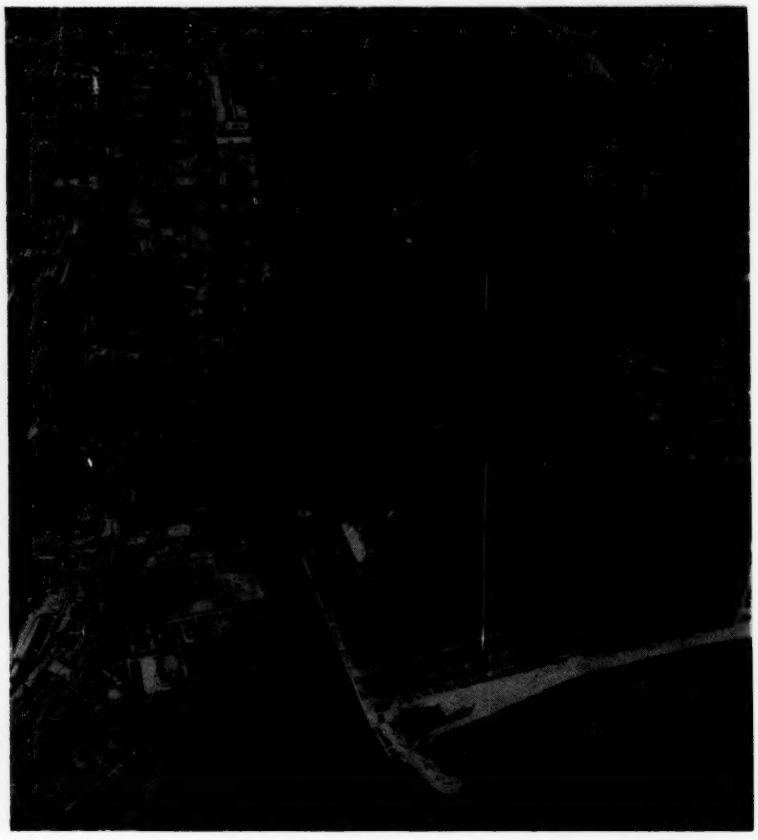


The Port of Toronto's inner harbor pictured here is included in future plans for extensive industrial development. Toronto is planning to build 12 miles of berthage and add 1,400 acres of land for industrial use at a cost of approximately $60 million.

Baton Rouge, La., is moving into the forefront in bulk cargo handling. Recently the port purchased and modernized the Burnside Bulk over its conveying systems in a simultaneous loading and unloading operation.

Proximity of raw materials may be a major determining factor in the location of your new plant and many ports are located near the source of various raw materials. The Michigan Chemical Corporation needed a location that was nearby sea-water and seashells from which magnesia could be produced. After several sites were investigated, Port St. Joe, Florida, was picked. This was a rather simple matter of investigation, but it points up the raw material factor.

The Port of Galveston is one of the world's top sulphur ports and, if this mineral is important in your operation, your choice of location could be easily narrowed down. Investigation reveals many similar situations.

If you do not need a deep-water site but would like to locate near a port, it would be advantageous to you to check on the canal sites in and around many of the ports. A canal site is an industrial location that is not directly adjacent to deep water but is inland with connecting barge canals.

For example, the Port of Baton Rouge has three barge transfer facilities that allow low-cost canal or river transportation inland or to the port itself. Recent dredgings in this port area have opened for industrial use large areas of land. Another two and one-half mile segment to this canal will make more land available, which is less expensive than deep-water frontage.

The Port of Mobile also maintains an industrial canal and a barge terminal that allows access to the port and to low-cost canal sites for tonnage-producing industry.

In some instances, you may want to locate in a port that is a center of related or complementary industries. If chemical manufacturing firms were your major suppliers or buyers, you would want to check which ports are chemical centers. One of these would be the Port of Wilmington, which has been called the "Chemical Center of the World" because of the big chemical plants located there, such as E. I. duPont.

The Port of Beaumont is in a rich petroleum and petro-chemical area. Such names as duPont, Goodrich-Gulf, Sun Oil, Pure Oil, Gulf Oil and the Texas Company can be found within a 30-mile radius. These are only two of many ports that would be of interest because of the type industry located nearby.

Financing is a subject that bears much weight in building or leasing a new plant and it is not surprising to find that ports have followed the lead of other communities and arranged financing for new industry.

Some ports have even set up financing arrangements before inviting new industry in. The Port of Hood River, Oregon, is a case in point. Here is a direct quote from this port's own exploratory letter to industry: "The Port of Hood River is prepared to purchase land and build a factory building to the needs of prospective industry on a lease basis of one percent per month or less. Such an arrangement would permit a factory location at a minimum cash outlay and a tax advantage."

You might want to consider a growing port rather than an established port as a plant site. There are several advantages just as there are several inherent disadvantages connected with growing ports.

Chief disadvantages are a lack of special equipment and facilities and a lack of related businesses that could possibly aid in the development of your business. The main advantages are: Usually lower land cost, a wide choice of sites, expansion room, and the special services or treatment that a small port is sometimes eager to give to a company that makes up a large part of the port business.

Port Everglades, Fla., can serve as a representative example of "growth" ports. The tonnage at this port increased in 1958 10 percent

over 1957 and this is the fifth year in a row that the port registered a 10 percent gain in tonnage over the preceding year. Port Everglades is rapidly expanding its facilities and equipment in order to attract more business.

Some basic points to check in investigating a growing port as a possible plant site are: Land available, choice of sites, expansion room, facilities and equipment available, plans for future expansion of port and facilities, labor situation, proximity of markets, and population growth in and around the port city.

A report on ports would be incomplete without a section on Canada and some of its ports. Canada's position in U.S. and world trade has been greatly strengthened by the vast improvement of the St. Lawrence Seaway, of course, and much expansion is planned in most Canadian ports connected with the seaway.

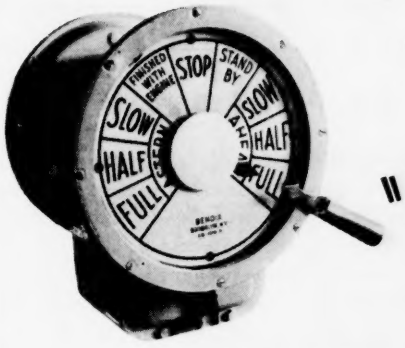
The Port of Toronto increased its direct overseas tonnage to 713,186 tons in 1959 compared to 287,768 tons in 1958. The scope of direct trade with foreign ports also increased more than 50 percent in 1959. These figures give an idea of the importance of the Seaway to Canada.

Toronto is planning to build 12 miles of berthage and add 1,400 acres of industrial land at a cost of $60 million. The industrial opportunity obviously is big here.

Likewise, the Port of Hamilton has gained much traffic as a result of the improvement of the Seaway and has made extensive plans to expand its facilities. Publicly-sponsored wharf, terminal and bridge construction together with dredging and land reclamation undertaken in 1955 and scheduled for completion in 1961 will total close to $40 million in improvements for the Port of Hamilton.

From these glowing reports, it may well be that you should look to Canada at least for preliminary investigation.

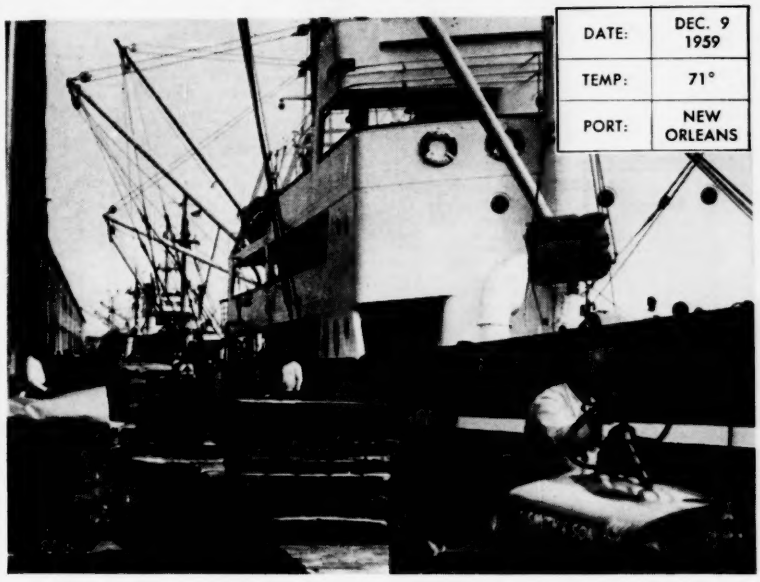
Ports do not offer a panacea for plant location problems but they should certainly be included in your investigation plans because a large variety of businesses could take advantage of port locations and facilities. This report simply focuses attention on some of the opportunities available.



Your cargo moves

"FULL SPEED AHEAD"

every day of the year via Port of New Orleans



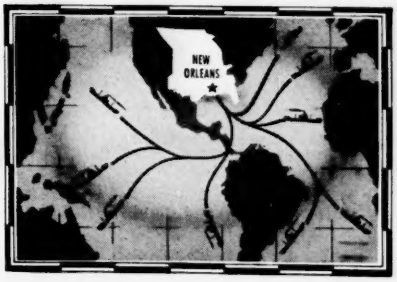
No delays, no bottlenecks — plus all of these advantages:

• Fast, safe handling • Shipside delivery from 8 major rail lines, 46 truck lines, 50 barge lines • Reasonable freight forwarding charges • Lowest insurance rates in America • No terminal delays • Foreign Trade Zone #2 • Lower inland freight rates to or from Mid-Continent U.S.A. • Regular sailings to all world ports, over 4500 last year

For further information write Director of Trade Development, Board of Commissioners, 2 Canal Street, New Orleans, U.S.A.

Ship via

PORT OF NEW ORLEANS U.S.A.



REFERENCE LIST OF PORT FACILITIES

The following list of ports in the United States and possessions, Canada and some foreign countries gives you a partial reference list and some of the essential information about port facilities. Ports with detailed information on port facilities, area served and special equipment have completed a special questionnaire and returned it to us for this geographical directory. Others on the list did not return the questionnaire.

ALABAMA

Port of Mobile
P. O. Drawer 721
Mobile, Alabama
The Port of Mobile
Alabama State Docks Department
Mobile 4, Alabama

ALASKA

Anchorage Port Commission
George C. Shannon
P. O. Box 400
Anchorage, Alaska
Chamber of Commerce
Northward Building
Fairbanks, Alaska
Chamber of Commerce
206 Municipal Building
Juneau, Alaska

CALIFORNIA

Encinal Terminals, Alameda, California. B. R. Allen, Assistant to President. Steamer lines serving the port's docks serve the entire world. During 1959 the port handled approximately 1,000,000 total tonnage. The channel depth is 32 ft. and it has 1,200,000 sq. ft. covered storage and transit shed space. The port operates steamship terminals, docks, warehouses, stevedoring, trucking, pool and buyer cars. It has 65 acres of industrial sites and a 60,000 sq. ft. industrial building for lease. It also offers assistance in financing sites or building. 55 acres of industrial land is adjacent to deep water docks that are served by over 60 steamer lines.
Crescent City Harbor
Crescent City, California
Eureka Harbor Area
Eureka, California
Port of Hueneme
P. O. Box 297
Hueneme, California
Port of Long Beach, 925 Harbor Plaza, Long Beach, California. C. L. Vickers, General Manager. The port serves the Harbor District, a total of 7,500 acres and it handled a total of 10 million tons during 1959. The channel depth is approximately 40 ft. and the covered storage and transit shed space is 2,000,000 sq. ft. Special facilities include bulk loading from rail cars to ship, electro magnetic cranes, and a grain elevator will be built in 1960 — 900,000 cu. bushel capacity. It has 175 acres of industrial sites for lease and offers assistance in financing.
Port of Los Angeles
Bernard J. Caughlin
General Manager
City Hall
Los Angeles, California
Port of Oakland (Board of Port Commissioners), Grove Street Pier, Oakland 7, California. Dudley W. Frost, Executive Director. The port primarily serves western states. It handled approximately 3,300,000 total tonnage during 1959. The channel depth is 30-35 ft. and the port has 900,000 sq. ft. covered storage and transit shed space. An oil pier and petrochemical terminal are among special facilities. It has 1,000 acres of industrial sites for lease and offers assistance in financing same.
Port of Redwood City
M. D. McCarl
Port Manager
Redwood City, California
Port of San Diego, 1365 North Harbor Drive, San Diego 1, California, John Bate, Port Director. Offices also located in Los Angeles and Japan. The port serves West Texas; New Mexico; Arizona; Baja California; Mexico; Imperial Valley; Orange and San Diego Counties, California. During 1959 the port handled 396,459 revenue tons of cargo. The channel depth is 37 ft. The covered storage and transit shed space is 650,000 sq. ft. Among special facilities are medium bulk loader, bunkering at 9 berths, livestock pens, ballast discharge facility. New industrial areas available and being built approximately 6 miles from tidelands.
Sacramento-Yolo Port District
W. G. Stone
Director
705 California Fruit Building
Sacramento 14, California
San Francisco Port Authority
Ray F. Watts
Ferry Building
San Francisco 11, California
Port of Stockton
Elmo E. Ferrari
Port Director
P. O. Box 2089
Stockton, California
Ventura-Oxnard Harbor
Ventura, California

CONNECTICUT

Port of New Haven
New Haven, Connecticut

DELAWARE

The Port of Wilmington
Wilmington, Delaware

FLORIDA

Canaveral Port Authority
George J. King
Port Director
P. O. Box 1463
Cocoa, Florida
Broward County Port Authority
R. T. Spangler
Port Director
Port Everglades Station
Fort Lauderdale, Florida
Fort Pierce Port and Terminal Company, P. O. Box 1372, Fort Pierce, Florida. M. A. Ramsey, president. Entire port with exception of cold storage terminal pier owned and operated by Indian River Refrigeration Terminal Company. During 1959 the port handled approximately 75,000 tons of cargo. The channel depth is 25 ft. and the covered storage and transit shed space is 10,000 sq. ft. The port has 30 acres of industrial sites for sale and 10 acres for lease. It also has a 5,000 sq. ft. industrial building for lease. Industrial area on main line of railroad; within three blocks of U. S. Highway No. 1; adjoins port area and available to barge line.
City of Jacksonville Municipal Docks and Terminals
J. Dillon Kennedy
Commissioner of Public Utilities
P. O. Box 3005
Jacksonville, Florida
City of Miami
Arthur Darlow, Manager
853 Biscayne Boulevard
Miami, Florida
Pensacola Port Authority
Henry N. Folk, Jr.
Chairman
P. O. Box 644
Pensacola, Florida
Port St. Joe Chamber of Commerce
Harry H. Saunders
Chairman Industrial Development Committee
Port St. Joe, Florida
St. Augustine Port Commission
L. C. Ringhaver
Chairman
P. O. Box 658
St. Augustine, Florida
I. P. Pedraza
Executive Director
Lambert Building
Tallahassee, Florida
Hillsborough County Port Authority
Jack P. Fitzgerald
Port Director
P. O. Box 981
Tampa, Florida
Tampa Maritime Association
S. S. Gaillard
President
P. O. Box 2879
Tampa, Florida
Port of Palm Beach Authority
Joel C. Wilcox
Port Director
P. O. Box 990
West Palm Beach, Florida

GEORGIA

Brunswick Port Authority
Joe Isenberg
Brunswick Shipyard
Brunswick, Georgia
Georgia Ports Authority
J. D. Holt
Executive Director
P. O. Box 1039
Savannah, Georgia
Savannah District Authority, P. O. Box 768, Savannah, Georgia, G. H. Kissinger, Jr., Executive Director. The port serves Metropolitan Savannah and Savannah area. During 1959 the port handled over 4,000,000 short tons of cargo. The channel depth is 34 ft. It has over 2,000,000 sq. ft. covered storage and transit shed space. Savannah Machine and Foundry operates dry docks for shipbuilding and repairs — 540 ft. in length and 73 ft. in width. It has four deep water terminals for general cargoes. The port can handle any normal size ship which ordinarily call at South Atlantic and Gulf Ports. It has a 34,000 sq. ft. industrial building for sale and a 20,000 sq. ft. industrial building for lease and offers assistance in financing.

HAWAII

Chamber of Commerce
211 Dillingham Building
Honolulu, Hawaii
Honolulu Board of Harbor Commissioners
Mr. Harold W. Butzine
P. O. Box 397
Honolulu, Hawaii

ILLINOIS

Calumet Harbor Terminals
130th and Stony Island Avenue
Chicago, Illinois
Chicago Regional Port District, 360 North Michigan Avenue, Chicago 1, Illinois. Maxim M. Cohan, General Manager. The port serves the Lake Michigan and Chicago area. The channel depth is 21 ft. and the covered storage and transit shed space is 500,000 sq. ft.
Department of the Port of Chicago, Navy Pier, Chicago 11, Illinois. Captain John J. Manley, Port Director. The port serves entire Mid-America and handled 62,000,000 tons of cargo during 1959. The channel depth is 21-28 ft. and the covered storage and transit shed space is 1,470,000 sq. ft. Facilities include dry docks up to 710 ft. length of vessel, and 110 ton lift floating crane. The port has unlimited water sites and backup land available.
Department of Public Works
Captain John J. Manley
City Hall
Chicago 2, Illinois
Waukegan Port District
F. Ward Just
Chairman
4 South Genessee Street, Room 512
Waukegan, Illinois

IOWA

Port of Council Bluffs
Council Bluffs, Iowa
Port of Dubuque
Dubuque, Iowa
Port of Sioux City
Sioux City, Iowa

LOUISIANA

Port of Lake Charles
John H. Groh
Port Director
Lake Charles, Louisiana
Morgan City Harbor and Terminal District
A. J. Pattie
Morgan City, Louisiana

King George II of England selected this choice

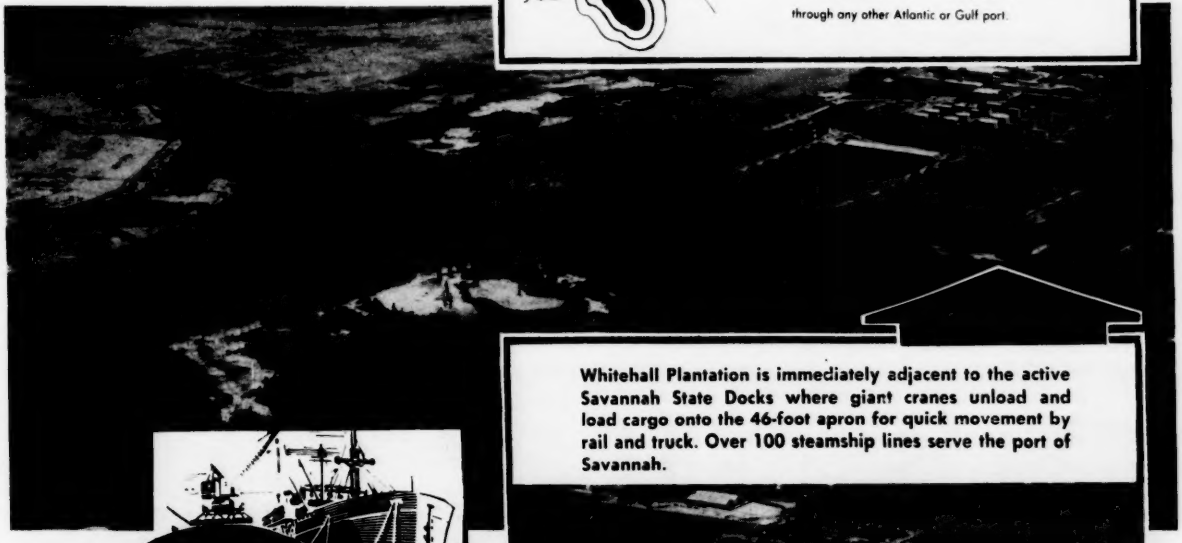
INDUSTRIAL SITE

for You!

PROCLAMATION

By Royal Proclamation of His Majesty, King George II of England, be it known that this tract of land overlooking the Savannah River, is hereby declared Free Land and granted tax free to his favorite Lords and Subjects.

King George II revealed notable prescience in deeding this choice land to his choice friends. Now known as Whitehall Plantation, and owned by the Georgia Ports Authority, this valuable waterfront adjoins the property and facilities of Savannah State Docks. Served by 5 railroads and 42 truck lines, it provides the ideal site for manufacturing, processing, re-distributing and exporting. Busy State Docks offer every modern facility to move goods speedily and economically—at rates comparable to or cheaper than through any other Atlantic or Gulf port.



Savannah STATE DOCKS

Whitehall Plantation is immediately adjacent to the active Savannah State Docks where giant cranes unload and load cargo onto the 46-foot apron for quick movement by rail and truck. Over 100 steamship lines serve the port of Savannah.

Georgia Ports Authority

Offices in **NEW YORK** 26 Broadway • **ATLANTA** 1332 Healey Bldg.

Address Inquiry to: **J. D. Holt Director Dept. 5A Box 1039 Savannah, Ga.**

Port of New Orleans
Robert W. French
Director of the Port
Board of Commissioners
2 Canal Street
New Orleans, Louisiana
Waguespack, Pratt, Inc.
F. Poche Waguespack
812 Perdido Street
New Orleans, Louisiana
Greater Baton Rouge Port Commission, P. O. Box 398, Port Allen, Louisiana. C. W. Herbert, Executive Director. The port serves the entire midwest and during 1959 handled 350,000 total tonnage. The channel depth is 35 ft. and the covered storage and transit shed space is 120,000 sq. ft. It has a special bulk handling facility at Burnside, Louisiana. The port has 700 acres of industrial sites for lease and offers assistance in financing same.

MAINE

Maine Port Authority
Edward Langlois
General Manager
Maine State Pier
Portland, Maine
Greater Portland Chamber of Commerce
Eugene Martin
142 Free Street
Portland, Maine

MARYLAND

Maryland Port Authority, Pier 2 Pratt Street, Baltimore 2, Maryland. Joseph L. Stanton, Executive Director. The port serves the middle Atlantic and central Midwestern states. During 1959 the port handled 23 million short tons of cargo. The channel depth is 39 ft. and it has 6,000,000 sq. ft. covered storage and transit shed space. There are 10 shipbuilding and repair plants, 7 floating drydocks with lifting capacities to 20,000 and 2 graving docks. The port has 5,000 acres of industrial sites available for lease and several buildings available for sale and/or lease. Assistance in financing is also offered.

MASSACHUSETTS

Port of Boston Commission
D. Fred Hurley
14 Court Square
Boston 8, Massachusetts
Fall River Industrial Commission
Wallace A. Walker
Director
142 Second Street
Fall River, Massachusetts

MICHIGAN

Port of Bay City
Bay City, Michigan
Port of Cheboygan
Cheboygan, Michigan
Port of Detroit Commission
Carlis J. Stettin
2400 Guardian Building
Detroit 26, Michigan
Port of Monroe, 3055 East Front Street, Monroe, Michigan. George L. Soleau, Manager. The port serves approximately 500 square miles and during 1959 the port handled 50,000 tons of cargo. The channel depth is 21 ft. The covered storage and transit shed space is 14,000 sq. ft. It has 550 acres of industrial sites for sale and 100 acres for lease.
Port of Muskegon
Muskegon, Michigan
Port Huron Maritime Commission, Port Huron, Michigan. Calvin M. Lakin, City Manager. The channel depth is 29 ft. and the coverage storage and transit shed space is 12,000 sq. ft. There are 500 ft. dock and arrons, road and railroad along side, adjacent federal highway, and 2 mobile gantry cranes on rail. It has 94 acres of industrial sites for sale or lease and offers assistance in financing. Completely planned industrial part adjacent to 2 major railroads.
Port Huron Terminal Company, P. O. Box 273, Port Huron, Michigan. Allen B. Stevens, President. The port serves the northern portion of Michigan plus the river district to Detroit. The channel depth is 30 ft. and the covered storage and transit shed space is 10,200 sq. ft. There are 2 18-ton gantry cranes and a 520 ft. concrete dock. The port has 16 acres of industrial sites for sale and industrial buildings for sale or lease. Financing assistance is also offered.
Port of Saginaw
Saginaw, Michigan

MINNESOTA

Seaway Port Authority of Duluth, 909 Alworth Building, Duluth, Minnesota. Robert T. Smith, Port Director. The port serves the North Central tier of the States. During 1959 the port handled a general cargo of 20,000 tons and export grain 86,000,000 bushels. The channel is 25 ft. and the covered storage and transit shed space is 234,000 sq. ft. Recently opened public marine terminal contains 234,000 sq. ft. of heated, sprinkler-controlled, protected transit shed and warehouse area; serviced by twin 90-ton gantry cranes with in-tandem capacity of 180 tons. 1,000 ft. slip-side; 500 ft. open berth; entirely palletized operation; 5 minutes from open water without obstacle.
Port of Minneapolis
Minneapolis, Minnesota
Port Authority of City of St. Paul
Frank E. Clawson
Assistant General Manager
City Hall and Court House
Saint Paul 2, Minnesota

MISSISSIPPI

Gulfport Port Commission, Box 997, Gulfport, Mississippi. R. B. Swenson, Port Director. The port serves the South and Midwest and during 1959 it handled 340,000 tons of cargo. The channel depth is 30 ft. and the covered storage and transit shed space is 392,000 sq. ft. It has 36 acres of planned industrial sites for lease.
The Jackson County Port Authority
Al S. Johnson
Director
Box 348
Pascagoula, Mississippi

MISSOURI

Port of St. Louis
St. Louis, Missouri

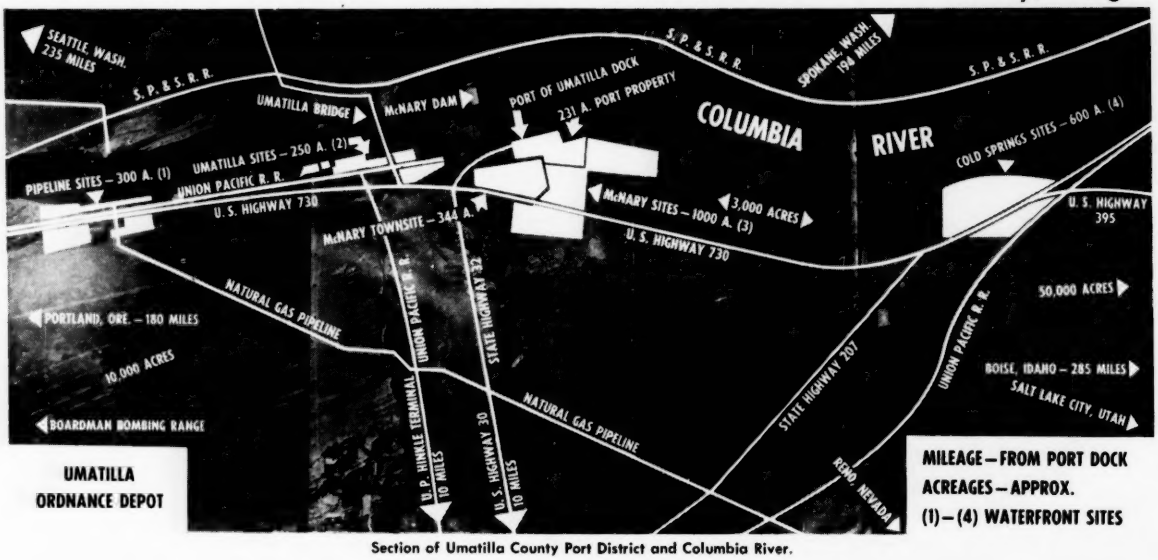
NEBRASKA

Nebraska City Dock Board
Robert L. McConneiee
Secretary
115 South 8th Street
Nebraska City, Nebraska

NATURAL DISTRIBUTION CENTER
OF THE RAPIDLY EXPANDING PACIFIC NORTHWEST

Location: Midpoint in the Pacific Northwest.
Industrial Sites: 1 lot to 50,000 Acres — 231 Acres owned by the Port of Umatilla.
Unlimited water.
Natural gas pipeline bisects Port District.
Good Labor Supply.
Management-labor relations history very good.
Revenue Bond Financing.
Excellent Transportation Facilities — Transcontinental Railways, Highways, Airways, and Barges on the Columbia River.
Abundant Hydroelectric Power — Rates Comparable to lowest in the nation.
Semi-arid Climate — Favorable to year around activity.

P. O. Box 408 — PORT OF UMATILLA — McNary, Oregon



Section of Umatilla County Port District and Columbia River.

NEW HAMPSHIRE

New Hampshire State Port Authority
John E. Seybolt
Chairman
720 Lafayette Road
Portsmouth, New Hampshire

NEW JERSEY

Port of Bayonne
Bayonne, New Jersey
Delaware River Port Authority of Pennsylvania and New Jersey
J. Alex Crothers
Director, Port Development Department
Bridge Plaza
Camden, New Jersey
South Jersey Port Commission
John L. Candlish
Foot of Beckett Street
Camden, New Jersey
Port of Elizabeth
Elizabeth, New Jersey
Port of Hoboken
Hoboken, New Jersey
Port of Jersey City
Jersey City, New Jersey
Port of Kearny
Kearny, New Jersey
Port of Newark
Newark, New Jersey
Port Raritan
Port Raritan, New Jersey
Department of Conservation and Economic Development, Bureau of Navigation
Salvatore A. Bontempo
137 East State Street
Trenton, New Jersey
Trenton Marine Terminals, Inc.
Trenton, New Jersey
Port of Weehawken-Edgewater
Weehawken, New Jersey

NEW YORK

Albany Port District Commission
Frank W. Dunham, Jr.
Administration Building
Port of Albany
Albany 2, New York
Niagara Frontier Port Authority
432 City Hall
Buffalo 2, New York
American Dock and Pouch Terminal
17 State Street
New York 4, New York
Bush Terminal Railroad
100 Broad Street
New York 4, New York
St. Lawrence Seaway Development Corporation
L. M. Hale
Director
Box 213
Massena, New York
Department of Marine and Aviation
Albert Bauer
City of New York
Pier A, North River
New York, New York
New York Foreign Trade Zone Operators, Inc.
17 Battery Place
New York 4, New York
The Port of New York Authority, 111 Eighth Avenue, New York 11, New York. Austin J. Tobin, Executive Director. The port serves 1,500 sq. miles and has one of the finest deep water berth loading grain elevators on the east coast. Distribution buildings available to users of waterborne cargoes. 1,000,000 sq. ft. now under construction.
Oswego Port Authority
Arthur C. Mendel, Jr.
Oswego, New York

NORTH CAROLINA

North Carolina State Ports Authority
D. Leon Williams
Education Building
Raleigh, North Carolina

OHIO

The Cleveland Stevedore Company
1000 Public Square Building
Cleveland 13, Ohio
Department of Port Control City of Cleveland
William J. Rogers
120 City Hall
Cleveland, Ohio
The Port of Cleveland
William J. Rogers, Director
120 City Hall
Cleveland, Ohio

Toledo-Lucas County Port Authority, 241 Superior Street, Toledo 4, Ohio. E. O. Jewell, General Manager. The port serves approximately 355 sq. miles and during 1959 the port handled 33,000,000 net tons of cargo. The channel depth is 25 ft. The covered storage and transit shed space is approximately 160,000 sq. ft. Among special facilities are two dry docks 545 ft. and 690 ft.; Coal and Ore Docks outstanding; Krupp coal loader—6,000 tons per hr.; 10 bulk liquid wharves; Three general cargo terminals. The port is developing 65 acres of property.
Toledo Marine Terminals, Inc., 26 Main Street, Toledo 5, Ohio. R. W. Cary, Vice President and General Manager. The port serves a minimum radius of 200 miles. A total of 79,270 net tons was handled during 1959. The channel depth is 25 ft. and the covered storage and transit shed space is 51,000 sq. ft. Among special facilities are double dockside tracks; 1500 ft. concrete marginal dock; warehouse loading tract and platform for rail cars and trucks; approximately 8 acres open storage; 30-ton stiff leg crane; 25-ton mobile crane; 15-ton mobile crane; lift trucks; total acreage 13½; located in center of town; easy access to inter-state highways.

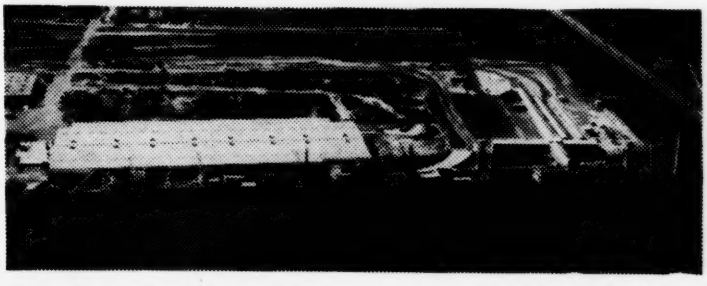
OREGON

Port of Alsea
Alsea, Oregon
Port of Arlington
Arlington, Oregon
Port of Astoria
Astoria, Oregon
Port of Coos Bay
Coos Bay, Oregon
Port of Hood River, 207 Cascade Street, Hood River, Oregon. George D. Bartch, Manager. The port serves the part of Co-

JUST TWO CIGARETTES FROM OPEN SEA . . .

That's why shippers, skippers and industrialists like South Carolina's deep water ports . . . they save them money!

More industry is discovering this every day



Take State Pier 8 in Downtown Charleston, for example. Modern concrete and steel . . . fabulous transit shed . . . dockside tracks . . . fast and tender, loving care for cargo . . . just seven and a half miles from the open sea!

It costs money to steam far inland and then have to spend a lot of time tied up at dockside, but at South Carolina's State Pier 8 at Columbus Street you're ready to sail again in a hurry.

Yes, in about the time the skipper can smoke a couple of cigarettes his ship can be sea-borne from this pier.
All South Carolina Ports have fast turnaround, efficient operation and money saving nearness to the open sea. Ship through South Carolina Ports.

CHARLESTON • GEORGETOWN • PORT ROYAL

In New York call
Al Bralower
52 Broadway
WHitehall 4-2575

In Chicago call
Ralph Higgins
327 S. LaSalle St.
WEbster 9-5815

SOUTH CAROLINA STATE PORTS AUTHORITY
P. O. BOX 827, CHARLESTON, SOUTH CAROLINA

Planning a Deep South Location?

If the answer is "yes" we invite you to take a good long look at Corpus Christi. Recent enlargements and extensions of the Port's basins, channels and canals have created several miles of choice deep water frontage and it's available for immediate development to any commerce-building industry.

Write: Nueces County Navigation Commission
P. O. Box 1541
Corpus Christi, Texas

The PORT of CORPUS CHRISTI

lumbia River open to ocean navigation. The channel depth is 30 ft. It has 600 acres of planned industrial sites for lease and offers assistance in financing same.

Port of Newport
Newport, Oregon

Port of Port Orford
Port Orford, Oregon

The Port of Portland Commission, P. O. Box 4099, Portland 8, Oregon. John J. Winn, Jr., General Manager. The port serves the port district of 218 miles and the general area served is in excess of 200,000 sq. miles. The port handled 9,000,000 tons of cargo during 1959. The channel depth is 35 ft. The port offers 220 ft. long sternwheel towboat, 30 in. pipeline dredge, ship repair yard including 2 large dry docks, 7 repair berths, plus all equipment. The port has 350 acres of industrial sites for sale and 650 acres lease. It also offers assistance in financing.

Commission of Public Docks, 3070 N. W. Front Avenue, Portland, Oregon. Thomas P. Guerin, General Manager. The port serves three public terminals in harbor and trade area covers entire Pacific N. W. and inland to Mississippi River. The port handled 8,644,241 tons of cargo during 1959. The channel depth is 35 ft. and the covered storage and transit shed space is 2,350,335 sq. ft. at terminals. Among the facilities are the following: Dry Docks, 12,000 and 17,000 ton capacity; harbor provides for storage at dock elevators; specialized grain handling facilities; newly constructed 1200 ton per hour loading gallery; under construction is $3.7 million bulk cargo pier and 900 ton per hour travelling bulk unloading tower; privately operated 12-acre transit shed; completely mechanized cargo handling system; 100 ton shear leg crane; largest tidewater grain elevator West of Mississippi. Approximately 1,000 acres of industrial sites available for sale or lease and 950,000 sq. ft. industrial building for lease.

Port of Umatilla, Box 408, McNary, Oregon. James H. Sturgis, Manager. The port serves Southeast Washington, Northeast Oregon and Southern Idaho. During 1959 the port handled 125,225 tons grain and approximately 75 tons petroleum products. The minimum channel depth is 7 ft. and the maximum is 14 ft. It has 231 acres of planned industrial sites for sale or lease and offers assistance in financing.

PENNSYLVANIA

Port of Erie
Erie, Pennsylvania

Division of Port Operations
Thomas C. Brown
Pier No. 4, South
Philadelphia 6, Pennsylvania

Port of Philadelphia
Philadelphia, Pennsylvania

Port of Pittsburgh
Pittsburgh, Pennsylvania

City of Providence
James J. Fisher
Department of Public Works
City Hall
Providence, Rhode Island

SOUTH CAROLINA

Shipyard River Terminals, P. O. Box 537, Charleston, South Carolina. James G. Gibbs, President. The port serves the southeastern area and during 1959 handled 250,000 tons of cargo. The channel depth is 30 ft. It has a covered storage and transit shed space of 300,000 sq. ft. Facilities include bulk handling gantry and bulk loading elevators.

South Carolina State Ports Authority
Cotesworth P. Means
Chairman
One Vendue Range
Charleston, South Carolina

TENNESSEE

Memphis and Shelby County Port Commission
Port Director
1115 Riverside Drive
Memphis, Tennessee

Port of Rockwood Authority
Harry T. Burn
Secretary-Treasurer
Box 210
Rockwood, Tennessee

TEXAS

Port Aransas
Aransas, Texas

Port of Beaumont Navigation District
James H. Hartzog
General Manager
P. O. Box 4126
Beaumont, Texas

Brownsville Navigation District
F. W. Hofmokel
P. O. Box 231
Brownsville, Texas

Corpus Christi Board of Trade
DeWitt Morgan
Box 1194
Corpus Christi, Texas

Nueces County Navigation Commission
Byrd Harris
Port Director
Box 1541
Corpus Christi, Texas

Port of Freeport
Freeport, Texas

Galveston Wharves, 802 25th Street, Galveston, Texas. W. H. Sandberg, General Manager. The port serves all states west of Mississippi River, and during 1959 it handled 6 million tons of cargo. The channel depth is 35 ft. and the covered storage and transit shed space is approximately 4,500,000 sq. ft. 4,000 acres of planned industrial sites are available for sale.

Arroyo Col. Navigation District
Clifford H. Purdy
Chairman
520 Embee Building
Harlingen, Texas

Harris County-Houston Ship Channel Navigation District, P. O. Box 2562, Houston 1, Texas. Jerry P. Turner, General Manager. The port serves 21 states—Indiana to Colorado and Great Lakes to Gulf. The port during 1959 handled 57,845,516 tons of cargo. The channel depth is 36 ft. and there is 1,005,869 sq. ft. of covered transit shed space. The port has heavy lift equipment, tanks for wine and molasses storage, 3½ million bushel grain elevator, and bulk handling facility now being built. 500 acres of planned industrial sites available for sale. Tremendous opportunity for industrial development along either side of channel. Port building bluk handling facility to encourage industry. Ample access, railroads, power, etc.

A COMPLETE PORT SERVICE

STEVEDORES, TERMINAL OPERATORS

SHIPYARD RIVER TERMINALS

P. O. BOX 537, CHARLESTON, S. C.

TELEPHONES: RAymond 2-2878, RAymond 2-4616 • TELETYPE: CS 339

Orange County Navigation and Port District, P. O. Box 504, Orange, Texas. J. T. Arledge, Port Director. The port serves the South Central states. During 1959 the port handled 1,360,000 tons of cargo. The channel depth is 33 ft. and has 90,000 sq. ft. covered storage and transit shed space. Facilities include berthing space for three ships. Marginal tracks located on dock apron; also double depressed rail tract at rear of transit sled. 92 acres of planned industrial sites are available for sale and 40 acres available for lease. The port offers assistance in financing.

Port Arthur
Port Arthur, Texas

Port Isabel
Port Isabel, Texas

Port Isabel-San Benito Navigation District of Cameron County
T. W. Dunn
P. O. Box 218
Port Isabel, Texas

Port Mansfield Port Authority
Charles R. Johnson
Port Director
152 South 7th Street
Raymondville, Texas

Port of Sabine Pass
Sabine Pass, Texas

Port of Texas City
Texas City, Texas

Texas City Terminal Railway Company, Box 591, Texas City, Texas. J. B. Wimberly President and General Manager. The port serves Texas City and handled a total of 14,825,085 net tons during 1959. The channel depth is 36 ft. Facilities include miscellaneous dry cargo barge berth with marginal track, seatrain facilities, steel-concrete dry cargo dock with attached hardtop open storage area. Waterfront and near-waterfront acreage available for lease or sale.

VIRGINIA

Peninsula Port and Industrial Authority, 237 28th Street, Newport News, Virginia. Louis C. Purdey, Executive Director. The port handled 13,000,000 tons of cargo during 1959. The channel depth is 40 ft. and the covered storage and transit shed space is 2,400,000 sq. ft. Special facilities include 2 coal piers, two ore unloading piers, one open pier, three general merchandise piers. 800 acres of planned industrial sites and a 10,000 sq. ft. industrial building for sale or lease. Assistance in financing is offered.

Norfolk Port Authority, Board of Trade Building, Norfolk, Virginia. M. M. Mora, General Manager. Jurisdiction of Norfolk Port Authority is within the corporate limits of the city of Norfolk. However, the Port of Norfolk serves the entire eastern, midwestern, and southern sections of the U. S. During 1959 the port handled approximately 18,200,000 tons of foreign cargo. The channel depth is 40 ft. and the approximate covered storage and transit shed space is 6,500,000 sq. ft. Norfolk has all types of facilities for handling cargo—general cargo and bulk terminals, cranes, grain elevators, etc. and several shipyards equipped with dry docks and marine railways and latest, most modern facilities. The port has 400 acres of planned industrial sites for sale and offers assistance in financing.

Virginia State Ports Authority, 254 Granby Street, Norfolk, Virginia. David H. Clark, Executive Director. The port serves all of the Atlantic Coast, inland to the Mississippi River and north into the Great Lakes area. During the first 6 months of 1959 the port handled 16,965,752 tons of cargo. The channel depth is 40 ft. and the covered storage and transit shed space is 10,000,000 sq. ft. Facilities include coal piers, grain elevators, ore handling facilities, extensive liquid storage areas, two major privately-owned shipbuilding and repair yards.

Virginia State Port Authority
Joseph A. Leslie, III*
Director, Public Relations
254 Granby Street
Norfolk 10, Virginia

Hampton Roads Maritime Association
H. M. Thompson
Executive Vice President
406-08 East Plume Street
Norfolk, Virginia

Norfolk Port Authority
Michael M. Mora
General Manager
Board of Trade Building
Norfolk, Virginia

Tidewater Virginia Development Council
300 Boush Street
Norfolk 10, Virginia

Portsmouth Industrial Commission
P. O. Box 559
Portsmouth, Virginia

WASHINGTON

Port of Bellingham, P. O. Drawer 643, Bellingham, Washington, Clarence M. Beal, Manager. The port serves all of Whatcom County and handled 13,000 tons of cargo during 1959. The channel depth is 30 ft. and the covered storage and transit shed space is 57,600 sq. ft. Facilities include pile-driving, dredging, lifting with capacity up to 60 tons. Marine railway with shipbuilding and repair facilities. 2 overhead lifting cranes up to 40 tons, grain elevator 2,000 ton capacity and port dock. 200 acres of planned industrial sites available for lease and assistance in financing is offered. 20-year program started and will include industrial sites, all over expansion.

Port of Bremerton
304 Medical Dental Building
Bremerton, Washington

Port of Camas-Washougal
311 N. E. Birch
Camas, Washington

Port of Everett
Pier I
Everett, Washington

Port of Kennewick
11 South Cascade Avenue
Kennewick, Washington

Port of Longview
Foot of Oregon Way
Longview, Washington

Port of Olympia, P. O. Box 827, Olympia, Washington. Duncan F. Stewart, Manager. The port serves all of Southwest Washington tributary to the Port of Olympia. During 1959 the port handled 350,000 tons of cargo. The channel depth is 30 ft. and the covered storage and transit shed space is 100,000 sq. ft. Cargo handling equipment includes two 40-ton locomotive cranes, 7½ ton lift trucks, otherwise adequate general handling cargo equipment. The port is planning an industrial development program for the near future.

Port of Port Angeles
P. O. Box 791
Port Angeles, Washington

Port of Pasco, P. O. Box 704, Pasco, Washington. Del C. Isaacson, Manager. The channel depth is 9 ft. and the covered storage and transit shed space is 1,300,000 sq. ft. Facilities include elevator, bulk loading conveyor, and petroleum handling equipment. The port has 459 acres of industrial sites for lease and a 1,250,000 sq. ft. industrial building for lease.

Port of Port Townsend
P. O. Box 553
Port Townsend, Washington

Port of Seattle
P. O. Box 1878
Seattle, Washington

Port of Tacoma, Box 1612, Tacoma, Washington. Marcus E. Anderson, Manager of Industrial Development. The port serves U. S. and World Ports. The channel depth is 40 ft. The port has 1,500 acres of planned industrial sites for sale and 500 acres for lease. Also, a 902,000 sq. ft. industrial building is available for lease and assistance is offered in financing.

Port of Vancouver
P. O. Box 570
Vancouver, Washington

Port of Walla Walla
Walla Walla, Washington

WISCONSIN

Brown County Board of Harbor Commissioners, Courthouse, Green Bay, Wisconsin. John F. Sainsbury, Port Director. The area served by the port is N. E. Wisconsin, St. Paul, Minneapolis, and Northwest to the Rockies. The port during 1959 handled 3,500,000 tons lakewise and 72,000 tons overseas. The channel depth is 22 ft. and the covered storage and transit shed space is 650,000 sq. ft. Facilities include seven slips, 21 piers and wharves, heavy lift equipment, ship repair facilities, fuel and water supplies, chandler service, waterfront elevator, rail and highway transportation systems, efficient stevedoring agency. The port has 100 acres of industrial sites for sale and 50 acres for lease.

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PORT OF HOUSTON

Executive Offices: 1519 Capitol Avenue,
Telephone CA 5-0671,
P. O. Box 2562, Houston 1, Texas

Green Bay Association of Commerce
Chairman, Committee on Industrial Development
Green Bay, Wisconsin

City Harbor Commission
John Serpe, Secretary
City Hall, Room 1
Kenosha, Wisconsin

Division of Industrial and Port Development
Governor's Office
Madison 2, Wisconsin

Board of Harbor Commissioners, Room 710 City Hall, Milwaukee 2, Wisconsin. Harry C. Brockel, Municipal Port Director. The port serves 20 middle western states, Canada, and many significant areas of world trade and handled a total of 9 million tons during 1959. The channel depth is 21 ft. and the covered storage and transit shed space is 60,000 sq. ft. with 150,000 sq. ft. under construction. Facilities include transit sheds, open docks, heavy lift cranes, petroleum storage, grain elevators, passenger pier, car ferry terminal. The port has 50-60 acres of industrial sites for lease.

Racine Chamber of Commerce
Racine, Wisconsin

Sheboygan Harbor Commission
Sheboygan, Wisconsin

Superior Board of Harbor Commissioners, 1323 Broadway, Superior, Wisconsin. Lawrence E. Sinclear, Port Director. The area served is the Port of Superior and surrounding area and the port handled approximately 30,000,000 tons during 1959. The channel depth is 25 ft. and the covered storage and transit shed space is 4 million sq. ft. The port has unlimited planned industrial sites for sale or lease and has several industrial buildings for sale or lease.

City of Two Rivers, City Hall, Two Rivers, Wisconsin. Robert L. Broucek, City Manager. The port serves Northeast Wisconsin and handled a total of 187,017 tons during 1959. The channel depth is 18 ft. Crane and railroad siding available, 800 ft. city bulkhead dockage and 1550 ft. private bulkhead dockage, and dry dock and ship repairs made at Manitowoc, Wisconsin. There are 100 acres of industrial sites for sale or lease and a 14,330 sq. ft. industrial building for sale or lease. Assistance in financing is offered.

FOREIGN—

ARGENTINA

Direccion Nacional de Puertos
Captain Tomas J. McGough
Rivadavia 578
Buenos Aires, Argentina

BELGIUM

Port of Ghent
Director of the Port
1, Vliegtuiglaan
Ghent, Belgium

BRAZIL

Administracao do Porto Rio de Janeiro
Avenida Rodrigues Alvez 20
Rio de Janeiro, Brazil

Departmento Estadud de Portos,
Rios, e Canais Av. Maua s/n
Porto Alegre, Rio Grande do Sul, Brazil

Companhia Docas da Bahia
Avenida Beria Mar No. 262
Rio de Janeiro, Brazil

CANADA

Port Alberni Harbour Commissioners
Mr. Denis P. O'Brien
119 Second Avenue, South
Port Alberni, British Columbia, Canada

Port and Industrial Bureau, 24 Sydney Street, Saint John, New Brunswick. H. Herlof Smith, Commissioner. The port serves the County of Saint John and handled 2,500,000 total tonnage during 1959. The channel depth is 30 ft. (low tide) and the covered storage and transit shed space is 975,000 sq. ft. Drydock will accommodate largest vessel afloat. The port has largest per capita construction program in all of Canada.

Halifax Port Commission
W. B. Spencer
Secretary
Board of Trade Building
Halifax, Nova Scotia, Canada

Hamilton Harbour Commissioners, 605 James Street, North, Hamilton, Ontario. Clifford W. Morgan, General Manager. The port serves Southern Ontario and handled approximately 7,800,000 tons of cargo during 1959. The channel depth is 27 ft. and the covered storage and transit shed space is 300,000 sq. ft. Facilities include mobile cranes to 80 tons capacity, lift trucks for terminal mourment, bridge cranes for coal/ore handling. The port has approximately 200 acres of sites for lease.

National Harbours Board of Canada
W. C. Perron
West Block, Room 204
Ottawa, Ontario, Canada

Toronto Harbour Commissioners, 60 Harbour Street, Toronto, Ontario. E. B. Griffith, Q.C., General Manager. The port serves Southern Ontario and handled approximately 4,750,000 tons of cargo during 1959. The channel depth is 27 ft. and the covered storage and transit shed space is 400,000 sq. ft. Facilities include gantry cranes for bulk cargo, heavy lift derrick 50 ton capacity, and cargo lifted and handled with lift truck. Dock and waterfront properties for sale and lease in Harbour area.

CHILE

Servicio de Explotacion de Puertos
Ministerio de Hacienda
Casilla 133-V
Valparaiso, Chile

COSTA RICA

Ferrocaril Electrico al Pacifico
Apartado 543
San Jose, Costa Rica

DOMINICAN REPUBLIC

Puerto de Ciudad Trujillo
Comandancia de Puerto
Ciudad Trujillo, Dominican Republic

ECUADOR

Comite Ejecutivo de Vialidad de la Provincia del Guayas
Calle Velez No. 109, Casilla No. 4182
Guayaquil, Ecuador

EL SALVADOR

Comision Ejecutiva del Puerto de Acajutla
55-56 Edificio Regalado
San Salvador, El Salvador

MEXICO

Ministry of Marine
Mexico City
Mexico

NICARAGUA

Corinto Port Authority
Corinto, Nicaragua

NORTH WEST INDIES

Harbour Master Curacao
Curacao, North West Indies

PANAMA

Colon Free Zone
Republic of Panama
Box 1118
Colon, Panama

PERU

Port of Callao Authority
Apartado 1560
Lima, Peru

PHILIPPINES

Manila Port Service, Port Area, Manila, Philippines. Francisco A. Medrano, General Manager. The area served is the Customs zone, approximately 12 hectares, and the port during 1959 handled 2,026,436 revenue tons of cargo. Covered storage and transit shed space includes pier cargo sheds with a capacity of 37,500 measurement tons and a bonded warehouse of 15,000 measurement tons capacity. There are five piers with cargo sheds, and one pier has four gantry cranes. The port service has no industrial sites for sale or lease.

PUERTO RICO

Puerto Rico Ports Authority
Mr. Eduardo Gracia
P. O. Box 3508
San Juan, Puerto Rico

URUGUAY

Administration Nacional de Puertos
Montevideo, Uruguay

VENEZUELA

Administracion General de los Servicios Portuarios Nacionales
Caracas, Venezuela

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THE HAMILTON HARBOUR COMMISSIONERS
HAMILTON, CANADA

UNUSUAL SITE FACTORS INFLUENCE LOCATION OF PLANTS FOR CONVERSION OF SALINE WATER

In its program of selecting sites for five salt water conversion demonstration plants, the office of Saline Water, U. S. Department of the Interior, has set up a specialized rating schedule which is outlined here by the director of the office.

WASHINGTON. In its program to set up five demonstration plants which will convert sea or brackish water into fresh water, the Interior Department's Office of Saline Water planned and implemented a special score card of site selection criteria. A site selection board also was organized.

Following authorization in September 1958, for the five plants, the Office of Saline Water was literally flooded with applications from communities which wanted to be the location of one of the plants.

According to Dr. A. L. Miller, director of the Office, each applicant was sent a questionnaire which would help in evaluating their request for a plant. After the applications had been filed in the office here, engineers were sent to make on-the-spot investigations of the feasibility of the proposed locations. They, in turn, filled out a score card which to be used later by the Site Selection Board.

The original announcement stated that the five plants would be located one on the east coast, one on the gulf coast, and one on the west coast for sea water conversion. The other two are for brackish water, one to be in the Northern Great Plains and the other in the arid Southwest. So far, only three sites have been selected, one at Freeport, Texas, one at Roswell, New Mexico, and the other at Point Loma, California.

Dr. Miller explained that in the site selection rating schedule, three bases of rating were used: Technical factors, 62 per cent; demonstration value, 24 per cent, and assistance offered, 14 per cent, adding up to 100 per cent. These three were broken down into a number of other items, with varying point value adding up to 1,000.

Under technical factors, the items were broken down into (1) suitability of site and (2) effectiveness of local water utility management.

In the first item were terrain and bearing, 100 points; climatic and geographic, 40; proximity of site to clean saline water, 100; brine disposal afforded, 100, and zoning and surroundings, 100.

The second item included effectiveness of local water utility management, 20; adequacy of local water plant, distribution and storage facilities, 20; available power cost, 20; available fuel type and cost, 40; available transportation facilities, 40; availability of other utilities, 20, and availability of local supplies and labor, 20.

Under demonstration value were type of area, 20; interest in area, 40; local population, 40; local need (including military), 40; accessibility of site, 40; possibility of brine utilization 40, and possibility of plant expansion, 20.

Dr. A. L. Miller, director of the Office of Saline Water, U. S. Department of the Interior, is in charge of the site selection team for locating demonstration saline water conversion plants.

In assistance offered, both technical and financial, land acquisition rated 20 points; construction, 20; plant operation and maintenance, 40; sale value of converted water, 40, and possible future plant purchase, 20.

Dr. Miller said the first site selected, Freeport, was chosen from among more than 30 cities and communities which had asked to be considered.

SITE SELECTION RATING

TECHNICAL FACTORS (62%)

No.	Item	Relative Importance Factor	Points
1.	Suitability of Site		
	(a) Terrain & Bearing	***	100
	(b) Climatic & Geographic	(**)	(40)
	(c) Proximity of Site to Clean Saline Water	***	100
	(d) Brine Disposal Afforded	***	100
	(e) Zoning & Surroundings	***	100
	Sub-total		440
2.	#(Effectiveness of Local Water Utility Management	*)	20
3.	#(Adequacy of Local Water Plant, Distribution & Storage Facilities	*)	20
4.	Available Power Cost	*	20
5.	Available Fuel Type & Cost	**	40
6.	Available Transportation Facilities	**	40
7.	Availability of Other Utilities	*	20
8.	Availability of Local Supplies & Labor	*	20
	Sub-total		620

#originally combined

DEMONSTRATION VALUE (24%)

No.	Item	Relative Importance Factor	Points
9.	Type of Area	*	20
10.	Interest in Area	**	40
11.	Local Population	**	40
12.	Local Need (including military)	**	40
13.	Accessibility of Site	**	40
14.	Possibility of Brine Utilization	(**)	40
15.	Possibility of Plant Expansion	*	20
	Sub-total		240

ASSISTANCE OFFERED (14%) (Technical & Financial)

No.	Item	Relative Importance Factor	Points
16.	Land Acquisition	*	20
17.	Construction	*	20
18.	Plant Operation & Maintenance	**	40
19.	Sale Value of Converted Water	**	40
20.	Possible Future Plant Purchase	*	20
	Sub-total		140
	TOTAL		1000

Basis of Rating		Based Upon Relative Importance Factors
Technical Factors	62%	* = 0 - 20 points
Demonstration Value	24%	** = 0 - 40 points
Assistance Offered	14%	*** = 0 -100 points
TOTAL	100%	

Important factors influencing this decision included a location about two miles from the coast adjacent to an existing Dow Chemical plant. A sea intake line serving the chemical plant will provide the conversion plant with feed water. Dow will sell steam to the plant, eliminating need for constructing a boiler. Also, the city and the chemical plant, will purchase all the product water of the plant, and Dow will conduct research on the economical potential of brine utilization.

More than 30 cities also were studied before the decision was made to locate the second plant in Point Loma.

In commenting on the importance of developing additional water sources, Dr. Miller said:

"Over three-fifths of the globe is covered with water—far more than we will ever need—but most of that water is now unusuable because of high dissolved salt content; I would like to point out that there are many areas—not only the arid deserts of the world but here in the United States as well—where drinking water, not to mention agricultural and industrial water, is in short supply, available only at an excessive price."

He pointed out further that new supplies of natural fresh water will be ever more expensive while, at the same time, converting sea water to fresh will be coming down. In some areas these cost curves will cross and and converted sea water will be the least expensive of the two.

Citing a case where this has happened, Dr. Miller noted that conversion plant on the arid island of Aruba is turning out fresh water from the sea at the rate of 3.5 million gallons a day at a cost of $1.75 per thousand gallons.

Declaring that he has faith in what the U. S. will accomplish in its efforts to make saline and brackish water fit for human use, Dr. Miller added: "I am convinced that a breakthrough will occur that will help to solve our problems. The gap between the present fresh water resources and the cost of converting water from the sea is being narrowed. The program, while it may not seem important today, will be most important for generations yet unborn."

The five demonstration plants each will use a different process in order that the most efficient and least costly method may be determined.

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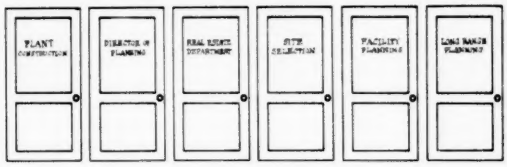
Hon. A. R. Patrick
MINISTER



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EDITORIAL SURVEYS

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Before you go site-seeking, take advantage of background studies which have already been prepared for the areas listed below. Generally, reprints are available gratis.

AREA	DATE
Gainesville, Fla	Feb., 1960
Western Pacific	Feb., 1960
West Virginia	Jan., 1960
Calgary	Jan., 1960
Hawaii	Dec., 1959
Kansas	Dec., 1959
St. Lawrence Valley	Nov., 1959
Oregon	Nov., 1959
Virginia	Oct., 1959
Staten Island	Oct., 1959
Oklahoma	Sept., 1959
Fresno County, Calif.	Sept., 1959
Niagara Frontier	Aug., 1959
Canada	Aug., 1959
Ohio River Valley	Jul., 1959
Columbus, Ohio	June., 1959
St. Louis Area	May, 1959
Iowa	Apr., 1959
Puerto Rico	Mar., 1959
Washington, D. C. Area	Feb., 1959
Cleveland Corridor	Jan., 1959
West Texas	Jan., 1959
Rome and Floyd County, Ga.	Dec., 1958
Sacramento	Nov., 1958
North Carolina	Oct., 1958
Orange County, Calif.	Sept., 1958
Erie County, Pa.	Aug., 1958
New Bedford, Mass.	Aug., 1958
Lower Va. Peninsula	July, 1958
Mattoon, Ill.	June, 1958
Florida Bay Area	June, 1958
Western Mississippi	May, 1958
Savannah, Ga. Area	May, 1958
Knoxville, Tenn.	April, 1958
Charleston, S. C.	March, 1958
Dallas, Tex.	Feb., 1958
Louisiana	Jan., 1958
Cobb County, Ga.	Jan., 1958
Arizona	Dec., 1957
Pennsylvania	Sept., 1957
Canada	Aug., 1957
Petersburg, Va.	Aug., 1957
Southwest, Ga.	July, 1957
Charlotte, N. C.	Feb., 1957

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INDUSTRIAL DEVELOPMENT MANUFACTURERS RECORD

RECENT RELEASES

By SUZANNE JOHNSON

GENERAL REPORTS

Science & State Government by Frederic N. Cleaveland. This book is the first systematic attempt to explore the role of state governments in the scientific effort of the nation. The activities of six state governments — California, Connecticut, New Mexico, New York, North Carolina, and Wisconsin — are presented by the author.

The six states were chosen for study on the basis of diversity in size, population, economic environment, and geographic location. The results of these studies are compared and summarized in this book to give a general view of scientific research as an activity of state government. The University of North Carolina Press, Chapel Hill, North Carolina. 161 pages. $3.50.

Engineering College Research Review 1959. The 1959 survey of engineering college research gives complete titles for all projects underway in schools which hold ECRC membership; in addition, numbers of research personnel at each institute are listed, and research policies are summarized. There is a complete index of research project subjects to help locate activities in similar fields at different institutions. Secretary of the American Society for Engineering Education, University of Illinois, Urbana, Illinois. 445 pages. $2.00.

Fluctuations in United States Imports from Brazil, Colombia, Chile, and Mexico, 1919-1954 by Calvin Patton Blair. This study seeks to answer two questions: How have merchandise imports from the selected countries varied during the chosen interval and how well can the observed fluctuations be explained by changes in United States income or product. Bureau of Business Research, University of Texas, Austin, Texas. 225 pages. $2.00.

AREA REPORTS

Flagstaff, Arizona Planning for the Future by Thomas J. McCleneghan. Special Studies No. 15. Bureau of Business and Public Research, University of Arizona, Tucson, Arizona. 8 pages.

The Meat Packers Come to Texas by E. C. Barksdale. An historical study of the meat packing industry in the state. Bureau of Business Research, University of Texas, Austin, Texas. 36 pages. $1.00.

1959 Economic Development Report — Oklahoma City. This report measures the annual commercial and industrial growth of the Oklahoma City area. Industrial Division, Oklahoma City Chamber of Commerce, 200 Skirvin Tower, Oklahoma City, Oklahoma. 73 pages.

Potential Wood-Using Industries for Georgia by Tze I. Chiang. This report covers several potentials which exist for many counties in the state which up to this time have not shared in the industrialization occurring at a steady pace. Woodpulp, furniture, hardboard, insulation board, wood prefabricated houses and wood pallets are all evaluated. Georgia Department of Commerce, 100 State Capitol, Atlanta, Georgia. 61 pages.

Minster, Ohio. Brochure high-lighting some of the facts and qualifications of the community. Industrial Development Committee, % Minster Civic Association, Minster, Ohio. 17 pages.

Alaska — Its Economy and Market Potential. The study covers the major economic aspects of the new state, outlining business and employment opportunities, and providing extensive data on other phases of Alaskan life. Superintendent of Documents, Government Printing Office, Washington 25, D. C. 61 pages. 70¢.

INDUSTRIAL DEVELOPMENT BRIEFS MANUFACTURERS RECORD

Western Kentucky Gas Company has established an industrial development department at its Owensboro, Kentucky, headquarters. William H. Neal, Jr., who has been with the company since 1949, has been named to the newly-created position of director of industrial development.

* * *

Roy T. Barnard

Roy T. Barnard of Philadelphia is the new president of the Urban Land Institute. Elected at the recent annual meeting of the Institute's Board of Trustees, held in Washington, Mr. Barnard succeeds David D. Bohannon of San Mateo, California. Other 1960 officers are Clarence Turley of St. Louis, first vice president; Maurice G. Read of Berkeley, California, second vice president; Waverly Taylor of Washington, secretary, and U.A. Denker of Wichita, treasurer.

* * *

The Contra Costa County (California) Development Association announces that the Director of its new Industrial Department is Walter T. Craig, for years a plant site locator for the E. I. DuPont de Nemours Company and later an independent industrial consultant.

CLASSIFIED ADVERTISING

Industrial Districts

The following planned industrial districts have sites available for immediate construction. Advantages offered by such districts are described in detail in the November-December 1954 issue, pages 6, 7, and 8.

Services offered are indicated by the following code: (A) Architect & Engineer; (C) Construction; (E) Electric Power; (G) Natural Gas; (F) Financing; (P) Paved Streets; (R) Rail Siding; (S) Sewers; (T) Telephone; (W) Water.

Iowa

IOWA "MANUFACTURING MEADOWS"— Clinton, Iowa (population 35,000). 138 miles west of Chicago on Mississippi River and Lincoln Highway (U. S. 30). 190 acres within city. Master plan by Skidmore, Owings & Merrill. Served by Chicago and North Western Railroad. Developed by Clinton Development Company, a civic-non-profit corporation. CHapel 2-4536. R. J. Stapleton, Managing Director. Services available: (a) (optional), (c), (e), (g), (f) (optional). (p), (r), (t), (w), restrictions.

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Georgia

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Personnel Placement

WANTED: Industrial Development Agent for southwestern Wisconsin county. To direct new industrial development program. State experience, education, age, expected salary. Deadline for written applications March 15, 1960. Grant County Industrial Development Committee, Box 284, Lancaster, Wisconsin.

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SUBURBAN ATLANTA — Sites of 3, 5, 10, 25, 50, 100 or more acres. All utilities and rail service in DeKalb County — Georgia's newest industrial area. 70% urban with more than 200 industries in industrial districts and individual tracts. For your new Southeastern plant or warehouse location — inquire and visit through F. Wm. Broome, Industrial Manager, DeKalb County C of C, 250 E. Ponce de Leon Ave., Decatur, Ga. (Atlanta phone, DRake 8-3691).

CANADA — Serviced Industrial Sites & Factories for Lease & Sale — Contact Industrial Commissioner, Richmond Hill, Ontario.

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Childress, Texas — 24,000 sq. ft. — completely sprinkled — 1 story, all brick — concrete floor — R.R. siding and truck loading platform — 13 ft. ceiling — very favorable labor market — low rental. Write Childress Chamber of Commerce.

264,000 FT. IND'L. space, R.R. sidg., truck docks, water front, 14.4 acres, excellent condition. Reasonable terms: Paul Bailey, 169 E. Wash. Rw., Sandusky, Ohio.

Located Southeastern Iowa. New sprinkler system. One story plant. Two story air conditioned office bldg. Approx. 33,000 total sq. ft. Friendly community. Excellent transportation. Favorable taxes. Good labor supply. Priced to sell. Brochure on request. Robert Humphrey, Chamber of Commerce, Fort Madison, Iowa.

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Does your city need modern 80 to 300 room hotel-motel or large bowling alley? Corporation interested buying 5 or 10 acres main highway, near city. Write Better Bilt Apts., 1461 Ashland Avenue, Columbus, Ohio.

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BRIEFS

The Upper Michigan Industrial Development Association has been newly formed at Marquette as the successor of the Industrial Department of the former Upper Peninsula Development Bureau, Inc. The President of the new organization is Hugh J. Leach, who is Manager of Michigan mines for the Cleveland-Cliffs Iron Company in Ishpeming. Gerald L. Johnson will be retained from the old organization as Manager. The Association expects that the Upper Peninsula will begin by 1961 to reap the benefits of a recent decision of the Federal Power Commission to allocate a supply of natural gas to the area.

* * *

The Greater Moorhead (Minnesota) Industrial Development Corporation has purchased and platted an 80-acre tract as an industrial park and sponsored the formation of a new concern, Moorhead Plastics, Inc., to be the first occupant. The corporation is constructing a building to be leased to the company for the manufacture of fiber glass boats.

* * *

Snapped during a recent survey trip through the Northwest were (left) Gene Cermak, development specialist for Chicago and Northwestern RR in Chicago; and Vic Bauer, ID man for Pacific Power and Light in Casper, Wyoming. In background is Wyoming state capitol in Cheyenne.

* * *

Lawrence, Massachusetts will benefit from the decision of the United Shoe Machinery Corporation to transfer styling and manufacturing operations from its Stewart and Potter Branch in Brooklyn to the T. W. Gardiner Branch in Lawrence.

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WYOMING NATURAL RESOURCES BOARD
AIDC ASPDA
Supreme Court Bldg.
Cheyenne, Wyoming

INDEX TO PROFESSIONAL AFFILIATIONS

AIDC	American Industrial Devel. Council
AIP	American Industitute of Planners
AMA	American Management Association
ARDA	American Railway Devel. Assn.
ASPDA	Assn. of St. Plan & Devel. Officials
ASPO	Amer. Society of Planning Officials
EEI	Edison Elec. Inst. (Area Dev. Comm.)
GLSIDC	Gt. Lakes Sts. Ind. Devel. Council
NIDA	Northeastern Ind. Devel. Assn.
NIZC	Natl. Industrial Zoning Committee
PNWIDC	Pacific N.W. Ind. Devel. Council
SIDC	Southern Industrial Devel. Council
SIR	Society of Industrial Realtors
ULI	Urban Land Institute

RATE INFORMATION

CLASSIFIED RATES: $4 per line for 1-time insertion, $3 per line for 12-time insertion. Estimate about 40 spaces in each line, allowing for box number.

PROFESSIONAL CARD & SIR RATES: $30 per column inch for 1-time insertion, $23 per column inch for 12-time insertion.

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The banks of address place trays holding the names of INDUSTRIAL DEVELOPMENT readers represents years of compilation effort. Today, this list includes 16,000 key executives, including more than 8,000 company presidents in the East and Midwest. Write for details of mail service plan whereby you may use these plates to address your direct mail promotion material.

CIRCULATION DEPARTMENT
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BRIEFS

The M.I.T. campus in Cambridge, Massachusetts, is going to have a new neighbor — a $15 million industrial research center. Cabot, Cabot, and Forbes, the Boston firm noted for industrial parks, is collaborating with M.I.T. and the City of Cambridge in developing the 14-acre site, which includes the former Lever Brothers plant and a 5-acre tract cleared by the Cambridge Redevelopment Authority. Floor space to be built may exceed 1,000,000 square feet, and will include four tall buildings along with lower structures. If pending legislation is approved, the site may boast a 15-story building, the highest in Cambridge. The expected increase in both employment and tax base will be substantial.

* * *

Eastman Kodak's plants in Rochester, New York; Kingsport, Tennessee; and Longview, Texas, are to share in a total of $61 million of the company's planned capital expenditures of $67 million in 1960. The remainder is scheduled for various sales and servicing units throughout the country. The expansion this year is considerably greater than the annual average of $54 million for the last five years. Included in the 1960 total are funds for the new polypropylene plant recently announced for Longview and for the Kodel polyester fiber plant put under construction last year in Kingsport.

* * *

The Bramalea Industrial Centre under construction near Toronto, Ontario, by Bramalea Consolidated Developments Limited will consist of four factory wings around a common foyer and reception area. It is part of the first phase of the planned development of nine square miles northwest of Toronto as a complete satellite city. The Centre is intended to accommodate small companies in the early stages of growth; as a company expands, the Bramalea organization will provide acreage or industrial buildings in other parts of the development.

* * *

On United flights from the West Coast to Hawaii passengers are kept amused by a navigation contest — given estimates of cruising speed and winds aloft, each passenger predicts

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Baltimore Gas and Electric Company, Robert J. George, Industrial Development Engineer, 1102 Lexington Building, Baltimore, Maryland. (Ad page 1)

Baltimore and Ohio Railroad Company, Arnath W. Knabe, Manager Industrial Development, Baltimore and Charles Streets, Baltimore 1, Maryland. (Ad page 13)

Greater Burlington Industrial Corporation, Charles D. Townsend, Executive Director, 191 College Street, Burlington, Vermont. (Ad page 2)

Carolina Power and Light Company, D. E. Stewart, Manager Area Development Department, Insurance Building, Raleigh, North Carolina. (Ad 2nd cover)

Colorado Department of Development, Lewis R. Cobb, Executive Director, 51 State Capitol, Denver 2, Colorado. (Ad page 15)

Port of Corpus Christi (Nueces County Navigation District), Byrd Harris, Port Director, Box 1541, Corpus Christi, Texas. (Ad page 78)

Denver and Rio Grande Western Railroad, E. L. Beardsley, Director of Industrial Development, 1531 Stout Street, Denver, Colorado. (Ad page 16)

Far Views Development Company, A. J. Mosby, President, Radio Central Building, Missoula, Montana. (Ad page 2)

Georgia Ports Authority, J. D. Holt, Executive Director, P. O. Box 1039, Savannah, Georgia. (Ad page 75)

Hamilton Harbour Commissioners, Hamilton, Ontario, Canada. (Ad page 80)

Port of Houston, Jerry P. Turner, General Manager, Box 2562, Houston, Texas. (Ad page 79)

Industrial for Jefferson County, 507 Commonwealth Building, Denver, Colorado. (Ad page 11)

Lewis Terminals, Inc., Philip D. Lewis, Vice President, 31 West 20th Street, Riviera Beach, Florida. (Ad page 3)

Lincoln Realty and Investment Company, Robert M. Daus, 2875 Casden Circle, Colorado Springs, Colorado. (Ad page 15)

Port of New Orleans, Robert W. French, Director of the Port, 2 Canal Street, New Orleans, Louisiana. (Ad page 73)

Nickel Plate Road, C. B. Bennett, Terminal Tower, Cleveland 13, Ohio. (Ad page 71)

Pueblo Chamber of Commerce, Charles L. Thomson, 211 West 5th Street, Pueblo, Colorado. (Ad page 43)

Puget Sound Power and Light Company, Stewart G. Neel, Manager Area Development, 860 Stuart Building, Seattle 1, Washington. (Ad page 81)

St. Petersburg Chamber of Commerce, Jack Bryan, Director Industrial Development, 4th Street and 3rd Avenue, St. Petersburg, Florida. (Ad 3rd cover)

Shipyard River Terminals, James L. Gibbs, P. O. Box 537, Charleston, South Carolina. (Ad page 78)

The South Carolina National Bank, Chauncey W. Lever, Vice President, Columbia, South Carolina. (Ad page 3)

South Carolina State Ports Authority, Cotesworth P. Means, One Vendue Range, Charleston, South Carolina. (Ad page 77)

Southern Railway System, B. E. Young, Assistant to President, 15 and K Streets, Washington 13, D. C. (Ad pages 44-45)

Port of Umatilla, J. H. Sturgess, Manager, P. O. Box 408, McNary, Oregon. (Ad page 76)

Union Electric Company, M. E. Skinner, Vice President and Director of Sales, 315 North Twelfth Boulevard, St. Louis, Missouri. (Ad 4th cover)

Union Pacific Railroad, A. C. Ritter, General Manager of Properties, 1416 Dodge Street, Omaha, Nebraska. (Ad page 5)

PLANT CONSTRUCTION AND INDUSTRIAL SERVICES:

American Creosote Works, Inc., S. B. Braselman, Jr., Vice President, 1305 Dublin Street, New Orleans, Louisiana. (Ad page 79)

A. J. Gerrard and Company, Ralph Wykoff, Advertising and Sales Promotion Manager, 1962 Hawthorne Avenue, Melrose Park, Illinois. (Ad page 4)

The Kinnear Manufacturing Company, Wallace Pearson, Vice President, 1191 Fields Avenue, Columbus 16, Ohio. (Ad page 46)

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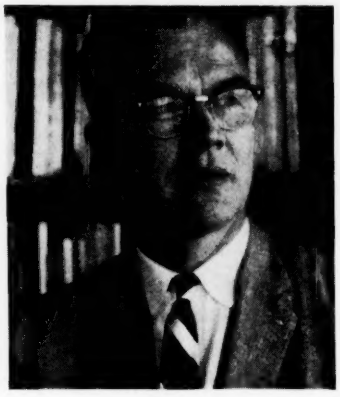
BRIEFS

the time required to reach the halfway point, closest guess winning a prize.

On a recent hop, ID's editor (with a couple of degrees in aeronautical engineering) and an off-duty airline pilot figured they had a sure thing. Smugly putting their heads together, they went into detailed analyses of the effect of decreased fuel load, the change in winds at various altitudes, and other technical considerations.

You guessed it — the prize was won by a little 70 year-old gent who'd never ridden in an airplane before.

* * *



Julius R. Jensen recently was appointed industrial consultant for the City of San Diego. With wide experience in the field, Mr. Jensen was formerly director of the Oregon Department of Planning and Development. He was succeeded in the latter position by Robert Tarr.

* * *

Some idea of the large tonnages involved in the coming construction boom can be gained from the U.S. Department of Commerce's announcement that, between now and 1975, water and sewage utilities will need an annual average of more than 80,000 tons of valves and hydrants alone.

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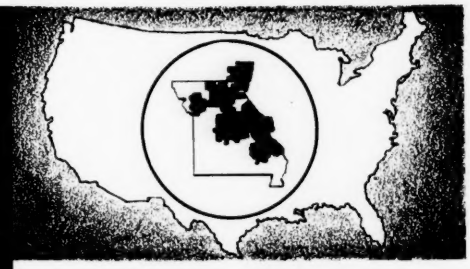

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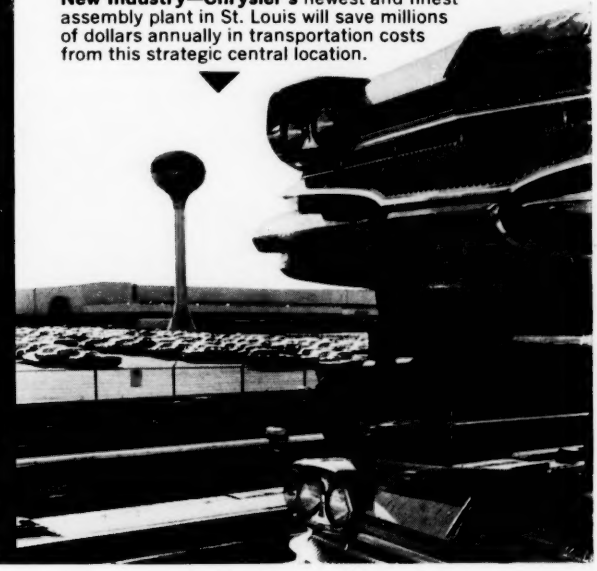

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